1

SEQUENCE LISTING

<110> EVANS, RONALD M.
      CHEN, J. DON
      ORDENTLICH, PETER
      DOWNES, MICHAEL R.

<120> FAMILY OF TRANSCRIPTIONAL CO-REPRESSORS THAT INTERACT
      WITH NUCLEAR HORMONE RECEPTORS AND USES THEREFOR

<130> SALK1510-3

<140> 09/522,753
<141> 2000-03-10

<150> 08/522,726
<151> 1995-09-01

<160> 52

<170> PatentIn Ver. 2.1

<210> 1
<211> 1495
<212> PRT
<213> Homo sapiens

<400> 1
Met Glu Ala Trp Asp Ala His Pro Asp Lys Glu Ala Phe Ala Ala Glu
 1   5   10   15

Ala Gln Lys Leu Pro Gly Asp Pro Pro Cys Trp Thr Ser Gly Leu Pro
            20   25   30

Phe Pro Val Pro Pro Arg Glu Val Ile Lys Ala Ser Pro His Ala Pro
        35   40   45

Asp Pro Ser Ala Phe Ser Tyr Ala Pro Pro Gly His Pro Leu Pro Leu
    50   55   60

Gly Leu His Asp Thr Ala Arg Pro Val Leu Pro Arg Pro Pro Thr Ile
 65   70   75   80

Ser Asn Pro Pro Pro Leu Ile Ser Ser Ala Lys His Pro Ser Val Leu
                85   90   95

Glu Arg Gln Ile Gly Ala Ile Ser Gln Gly Met Ser Val Gln Leu His
            100   105   110

Val Pro Tyr Ser Glu His Ala Lys Ala Pro Val Gly Pro Val Thr Met
        115   120   125

Gly Leu Pro Leu Pro Met Asp Pro Lys Lys Leu Ala Pro Phe Ser Gly
        130   135   140

Val Lys Gln Glu Gln Leu Ser Pro Arg Gly Gln Ala Gly Pro Pro Glu
145   150   155   160

2

```
Ser Leu Gly Val Pro Thr Ala Gln Glu Ala Ser Val Leu Arg Gly Thr
            165             170             175

Ala Leu Gly Ser Val Pro Gly Gly Ser Ile Thr Lys Gly Ile Pro Ser
            180             185             190

Thr Arg Val Pro Ser Asp Ser Ala Ile Thr Tyr Arg Gly Ser Ile Thr
        195             200             205

His Gly Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr Ile Thr Arg Ile
    210             215             220

Ile Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Gly Arg Glu Asp Ser
225             230             235             240

Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys Gly His Val Leu
            245             250             255

Ser Tyr Glu Gly Gly Met Ser Val Thr Gln Cys Ser Lys Glu Asp Gly
            260             265             270

Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala Pro Lys Arg Thr
            275             280             285

Tyr Asp Met Met Glu Gly Arg Val Gly Arg Ala Ile Ser Ser Ala Ser
    290             295             300

Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Pro Glu Arg His Ser Pro
305             310             315             320

His His Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr Gln Gly
            325             330             335

Ile Pro Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg Arg Glu
            340             345             350

Ala Lys Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro Pro Pro Pro Ser
    355             360             365

Arg Asp Leu Thr Glu Ala Tyr Lys Thr Gln Ala Leu Gly Pro Leu Lys
    370             375             380

Leu Lys Pro Ala His Glu Gly Leu Val Ala Thr Val Lys Glu Ala Gly
385             390             395             400

Arg Ser Ile His Glu Ile Pro Arg Glu Glu Leu Arg His Thr Pro Glu
            405             410             415

Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser Ile Thr Gln Gly
            420             425             430

Thr Pro Leu Lys Tyr Asp Thr Gly Ala Ser Thr Thr Gly Ser Lys Lys
            435             440             445

His Asp Val Arg Ser Leu Ile Gly Ser Pro Gly Arg Thr Phe Pro Pro
    450             455             460
```

3

```
Val His Pro Leu Asp Val Met Ala Asp Ala Arg Ala Leu Glu Arg Ala
465             470             475             480

Cys Tyr Glu Glu Ser Leu Lys Ser Arg Pro Gly Thr Ala Ser Ser Ser
            485             490             495

Gly Gly Ser Ile Ala Arg Gly Ala Pro Val Ile Val Pro Glu Leu Gly
            500             505             510

Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly Ala Pro Phe
            515             520             525

Ala Gly His Leu Pro Arg Gly Ser Pro Val Thr Met Arg Glu Pro Thr
    530             535             540

Pro Arg Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys Ala Ser Gln Asp
545             550             555             560

Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys Ser Pro His Ser
            565             570             575

Thr Val Pro Glu His His Pro His Pro Ile Ser Pro Tyr Glu His Leu
            580             585             590

Leu Arg Gly Val Ser Gly Val Asp Leu Tyr Arg Ser His Ile Pro Leu
            595             600             605

Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro Leu Asp Ala Ala
    610             615             620

Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala Pro Asn Pro Thr Tyr Pro
625             630             635             640

His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro Asp Thr Ala Ala
            645             650             655

Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln
            660             665             670

Met His His Asn Thr Ala Thr Ala Met Ala Gln Arg Ala Asp Met Leu
            675             680             685

Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu Asn Tyr Ala Ala
    690             695             700

Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val Pro His Leu Pro Val
705             710             715             720

Leu Val Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala Met Asp Arg Leu
            725             730             735

Ala Tyr Leu Pro Thr Ala Pro Gln Pro Phe Ser Ser Arg His Ser Ser
            740             745             750

Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Thr Lys Pro Thr Thr
            755             760             765
```

4

Thr Ser Ser Ser Glu Arg Glu Arg Asp Arg Asp Arg Glu Arg Asp Arg
    770   775   780

Asp Arg Glu Arg Glu Lys Ser Ile Leu Thr Ser Thr Thr Thr Val Glu
785   790   795   800

His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ser Ser
            805   810   815

Gly Ser Ser Gly Gly Gly Gly Gly Ser Ser Ser Arg Pro Ala Ser His
            820   825   830

Ser His Ala His Gln His Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala
        835   840   845

Leu Gln Gln Arg Pro Ser Val Leu His Asn Thr Gly Met Lys Gly Ile
    850   855   860

Ile Thr Ala Val Glu Pro Ser Lys Pro Thr Val Leu Arg Ser Thr Ser
865   870   875   880

Thr Ser Ser Pro Val Arg Pro Ala Ala Thr Phe Pro Pro Ala Thr His
            885   890   895

Cys Pro Leu Gly Gly Thr Leu Asp Gly Val Tyr Pro Thr Leu Met Glu
            900   905   910

Pro Val Leu Leu Pro Lys Glu Ala Pro Arg Val Ala Arg Pro Glu Arg
    915   920   925

Pro Arg Ala Asp Thr Gly His Ala Phe Leu Ala Lys Pro Pro Ala Arg
    930   935   940

Ser Gly Leu Glu Pro Ala Ser Ser Pro Ser Lys Gly Ser Glu Pro Arg
945   950   955   960

Pro Leu Val Pro Pro Val Ser Gly His Ala Thr Ile Ala Arg Thr Pro
            965   970   975

Ala Lys Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro Ala Pro
            980   985   990

Pro Ala Ser Ala Ser Asp Pro His Arg Glu Lys Thr Gln Ser Lys Pro
            995   1000   1005

Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Gly Ser
    1010   1015   1020

Ser Tyr Ser Pro Glu Gly Val Glu Pro Val Ser Pro Val Ser Ser Pro
1025   1030   1035   1040

Ser Leu Thr His Asp Lys Gly Leu Pro Lys His Leu Glu Glu Leu Asp
            1045   1050   1055

Lys Ser His Leu Glu Gly Glu Leu Arg Pro Lys Gln Pro Gly Pro Val
            1060   1065   1070

5

```
Lys Leu Gly Gly Glu Ala Ala His Leu Pro His Leu Arg Pro Leu Pro
    1075              1080              1085

Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro Gly Val
    1090              1095              1100

Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His Ile Ser Glu Val
1105              1110              1115              1120

Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln Leu Ser Ala Pro
              1125              1130              1135

Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser Cys Pro Val Leu
         1140              1145              1150

Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro Pro Pro Asp His
         1155              1160              1165

Gly Ala Pro Ala Arg Gly Ser Pro His Ser Glu Gly Gly Lys Arg Ser
    1170              1175              1180

Pro Glu Pro Asn Lys Thr Ser Val Leu Gly Gly Gly Glu Asp Gly Ile
1185              1190              1195              1200

Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro Gly His Ser Arg
              1205              1210              1215

Ser Ala Val Tyr Pro Leu Leu Tyr Arg Asp Gly Glu Gln Thr Glu Pro
         1220              1225              1230

Ser Arg Met Gly Ser Lys Ser Pro Gly Asn Thr Ser Gln Pro Pro Ala
         1235              1240              1245

Phe Phe Ser Lys Leu Thr Glu Ser Asn Ser Ala Met Val Lys Ser Lys
    1250              1255              1260

Lys Gln Glu Ile Asn Lys Lys Leu Asn Thr His Asn Arg Asn Glu Pro
1265              1270              1275              1280

Glu Tyr Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe Asn Met Pro Ala
              1285              1290              1295

Ile Thr Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln Ala Val Gln Glu
              1300              1305              1310

His Ala Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala Leu
         1315              1320              1325

Met Gly Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro Leu Ser Ala Asn
    1330              1335              1340

Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro Ala Ala Met Pro
1345              1350              1355              1360

Ile Thr Ala Ala Asp Gly Arg Ser Asp His Thr Leu Thr Ser Pro Gly
         1365              1370              1375
```

6

```
Gly Gly Gly Lys Ala Lys Val Ser Gly Arg Pro Ser Ser Arg Lys Ala
        1380             1385                   1390

Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro Ser Val
        1395              1400                  1405

Ser Ser Val His Ser Glu Gly Asp Cys Asn Arg Arg Thr Pro Leu Thr
    1410              1415             1420

Asn Arg Val Trp Glu Asp Arg Pro Ser Ser Ala Gly Ser Thr Pro Phe
    1425             1430            1435                   1440

Pro Tyr Asn Pro Leu Ile Met Arg Leu Gln Ala Gly Val Met Ala Ser
             1445              1450                  1455

Pro Pro Pro Pro Gly Leu Pro Ala Gly Ser Gly Pro Leu Ala Gly Pro
         1460               1465                  1470

His His Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu Cys Ser Gln Tyr
    1475                1480             1485

Glu Thr Leu Ser Asp Ser Glu
    1490             1495
```

```
<210> 2
<211> 46
<212> PRT
<213> Homo sapiens

<400> 2
His Ser Asp Val Ser Glu Ser Lys Arg Lys Arg Phe Glu Leu Asn Ser
    1             5               10                  15

Gly Glu Ala Gly Gly Asn Ala Thr Ser Ala Met Thr Asn Ser Ser Thr
        20              25                  30

Ser Gly Ser Met Asn Ile Ser Asn Ser His Gly Leu Lys Ala
        35              40                  45
```

```
<210> 3
<211> 17
<212> DNA
<213> Saccharomyces sp.

<400> 3
cggaggactg tcctccg
```
                                                                        17

```
<210> 4
<211> 8561
<212> DNA
<213> Homo sapiens

<400> 4
catgtcgggc tccacacagc ttgtggcaca gacgtggagg gccactgagc cccgctaccc   60
gccccacagc ctttcctacc cagtgcagat cgcccggacg cacacggacg tcgggctcct  120
```

7

```
ggagtaccag caccactccc gcgactatgc ctcccacctg tcgccgggct ccatcatcca 180
gccccagcgg cggaggccct ccctgctgtc tgagttccag cccgggaatg aacggtccca 240
ggagctccac ctgcggccag agtcccactc atacctgccc gagctgggga agtcagagat 300
ggagttcatt gaaagcaagc gccctcggct agagctgctg cctgaccccc tgctgcgacc 360
gtcacccctg ctggccacgg gccagcctgc gggatctgaa gacctcacca aggaccgtag 420
cctgacgggc aagctggaac cggtgtctcc ccccagcccc ccgcacactg accctgagct 480
ggagctggtg ccgccacggc tgtccaagga ggagctgatc cagaacatgg accgcgtgga 540
ccgagagatc accatggtag agcagcagat ctctaagctg aagaagaagc agcaacagct 600
ggaggaggag gctgccaagc cgcccgagcc tgagaagccc gtgtcaccgc cgcccatcga 660
gtcgaagcac cgcagcctgg tgcagatcat ctacgacgag aaccggaaga aggctgaagc 720
tgcacatcgg attctggaag gcctggggcc ccaggtggag ctgccgctgt acaaccagcc 780
ctccgacacc cggcagtatc atgagaacat caaaataaac caggcgatgc ggaagaagct 840
aatcttgtac ttcaagagga ggaatcacgc tcggaaacaa tggaagcaga agttctgcca 900
gcgctatgac cagctcatgg aggccttgga aaaaaaggtg gagcgcatcg aaaacaaccc 960
gcgccggcgg gccaaggaga gcaaggtgcg cgagtactac gaaaagcagt tccctgagat 1020
ccgcaagcag cgcgagctgc aggagcgcat gcagagcagg gtgggccagc ggggcagtgg 1080
gctgtccatg tcggccgccc gcagcgagca cgaggtgtca gagatcatcg atggcctctc 1140
agagcaggag aacctggaga agcagatgcg ccagctggcc gtgatcccgc ccatgctgta 1200
cgacgctgac cagcagcgca tcaagttcat caacatgaac gggcttatgg ccgaccccat 1260
gaaggtgtac aaagaccgcc aggtcatgaa catgtggagt gagcaggaga aggagacctt 1320
ccgggagaag ttcatgcagc atcccaagaa ctttggcctg atcgcatcat tcctggagag 1380
gaagacagtg gctgagtgcg tcctctatta ctacctgact aagaagaatg agaactataa 1440
gagcctggtg agacggagct atcggcgccg cggcaagagc cagcagcaac aacagcagca 1500
gcagcagcag cagcagcagc agcagcagca gcccatgccc cgcagcagcc aggaggagaa 1560
agatgagaag gagaaggaa aggaggcgga gaaggaggag gagaagccgg aggtggagaa 1620
cgacaaggaa gacctcctca aggagaagac agacgacacc tcaggggagg acaacgacga 1680
gaaggaggct gtggcctcca aaggccgcaa aactgccaac agccagggaa gacgcaaagg 1740
ccgcatcacc cgctcaatgg ctaatgaggc caacagcgag gaggccatca ccccccagca 1800
gagcgccgag ctggcctcca tggagctgaa tgagagttct cgctggacag aagaagaaat 1860
ggaaacagcc aagaaaggtc tcctggaaca cggccgcaac tggtcggcca tcgcccggat 1920
ggtgggctcc aagactgtgt cgcagtgtaa gaacttctac ttcaactaca agaagaggca 1980
gaacctcgat gagatcttgc agcagcacaa gctgaagatg gagaaggaga ggaacgcgcg 2040
gaggaagaag aagaaagcgc cggcggcggc cagcgaggag gctgcattcc cgcccgtggt 2100
ggaggatgag gagatggagg cgtcgggcgt gagcggaaat gaggaggaga tggtggagga 2160
ggctgaagcc ttacatgcct ctgggaatga ggtgcccaga ggggaatgca gtggcccagc 2220
cactgtcaac aacagctcag acaccgagag catcccctct cctcacactg aggccgccaa 2280
ggacacaggg cagaatgggc ccaagccccc agccaccctg ggcgccgacg ggccaccccc 2340
aggcccaccc accccaccac ggaggacatc ccgggccccc attgagccca ccccggcctc 2400
tgaagccacc ggagccccta cgccccacc agcacccca tcgccctctg cacctcctcc 2460
tgtggtcccc aaggaggaga aggaggagga gaccgcagca gcgcccccag tggaggaggg 2520
ggaggagcag aagcccccg cggctgagga gctggcagtg gacacaggga aggccgagga 2580
gcccgtcaag agcgagtgca cggaggaagc cgaggagggg ccggccaagg gcaaggacgc 2640
ggaggccgct gaggccacgg ccgagggggc gctcaaggca gagaagaagg agggcgggag 2700
cggcagggcc accactgcca agagctcggg cgcccccag gacagcgact ccagtgctac 2760
ctgcagtgca gacgaggtgg atgaggccga gggcggcgac aagaaccggc tgctgtcccc 2820
aaggcccagc ctcctcaccc cgactggcga ccccgggcc aatgcctcac cccagaagcc 2880
actggacctg aagcagctga agcagcgagc ggctgccatc ccccccatcc aggtcaccaa 2940
agtccatgag cccccccggg aggacgcagc tcccaccaag ccagctcccc cagcccacc 3000
gccaccgcaa aacctgcagc cggagagcga cgccctcag cagcctggca gcagcccccg 3060
gggcaagagc aggagcccgg caccccccgc cgacaaggag gccttcgcag ccgaggccca 3120
gaagctgcct ggggaccccc cttgctggac ttccggcctg cccttccccg tgccccccg 3180
tgaggtgatc aaggcctccc cgcatgcccc ggacccctca gccttctcct acgctccacc 3240
tggtcaccca ctgcccctgg gcctccatga cactgcccgg cccgtcctgc cgcgcccacc 3300
caccatctcc aacccgcctc ccctcatctc ctctgccaag caccccagcg tcctcgagag 3360
gcaaataggt gccatctccc aaggaatgtc ggtccagctc cacgtcccgt actcagagca 3420
tgccaaggcc ccggtgggcc ctgtcaccat ggggctgccc ctgcccatgg accccaaaaa 3480
accggagagc ctgggggtgc ccacagccca ggaggcgtcc gtgctgagag ggacagctct 3600
```

8

```
gggctcagtt ccgggcggaa gcatcaccaa aggcattccc agcacacggg tgccctcgga 3660
cagcgccatc acataccgcg gctccatcac ccacggcacg ccagctgacg tcctgtacaa 3720
gggcaccatc accaggatca tcggcgagga cagcccgagt cgcttggacc gcggccggga 3780
ggacagcctg cccaagggcc acgtcatcta cgaaggcaag aagggccacg tcttgtccta 3840
tgagggtggc atgtctgtga cccagtgctc caaggaggac ggcagaagca gctcaggacc 3900
cccccatgag acggccgccc ccaagcgcac ctatgacatg atggagggcc gcgtgggcag 3960
agccatctcc tcagccagca tcgaaggtct catgggccgt gccatcccgc cggagcgaca 4020
cagcccccac cacctcaaag agcagcacca catccgcggg tccatcacac aagggatccc 4080
tcggtcctac gtggaggcac aggaggacta cctgcgtcgg gaggccaagc tcctaaagcg 4140
ggagggcacg cctccgcccc caccgccctc acgggacctg accgaggcct acaagacgcà 4200
ggccctgggc ccctgaagc tgaagccggc ccatgagggc ctggtggcca cggtgaagga 4260
ggcgggccgc tccatccatg agatcccgcg cgaggagctg cggcacacgc ccgagctgcc 4320
cctggccccg cggccgctca aggagggctc catcacgcag ggcaccccgc tcaagtacga 4380
caccggcgcg tccaccactg gctccaaaaa gcacgacgta cgctccctca tcggcagccc 4440
cggccggacg ttcccacccg tgcacccgct ggatgtgatg gccgacgccc gggcactgga 4500
acgtgcctgc tacgaggaga gcctgaagag ccggccaggg accgccagca gctcgggggg 4560
ctccattgcg cgcggcgccc cggtcattgt gcctgagctg ggtaagccgc ggcagagccc 4620
cctgacctat gaggaccacg gggcacccct tgccggccac ctcccacgag gttcgcccgt 4680
gaccatgcgg gagcccacgc cgcgcctgca ggagggcagc ctttcgtcca gcaaggcatc 4740
ccaggaccga aagctgacgt cgacgcctcg tgagatcgcc aagtccccgc acagcaccgt 4800
gcccgagcac cacccacacc ccatctcgcc ctatgagcac ctgcttcggg gcgtgagtgg 4860
cgtggacctg tatcgcagcc acatcccccct ggccttcgac cccacctcca taccccgcgg 4920
catccctctg gacgcagccg ctgcctacta cctgccccga cacctggccc ccaacccac 4980
ctacccgcac ctgtacccac cctacctcat ccgcggctac cccgacacgg cggcgctgga 5040
gaaccggcag accatcatca atgactacat cacctcgcag cagatgcacc acaacacggc 5100
caccgccatg gcccagcgag ctgatatgct gaggggcctc tcgccccgcg agtcctcgct 5160
ggcactcaac tacgctgcgg gtccccgagg catcatcgac ctgtcccaag tgccacacct 5220
gcctgtgctc gtgcccccga caccaggcac cccagccacc gccatggacc gccttgccta 5280
cctccccacc gcgccccagc ccttcagcag ccgccacagc agctccccac tctccccagg 5340
aggtccaaca cacttgacaa aaccaaccac cacgtcctcg tccgagcggg agcgagaccg 5400
ggatcgagag cgggaccggg atcgggagcg ggaaaagtcc atcctcacgt ccaccacgac 5460
ggtggagcac gcacccatct ggagacctgg tacagagcag agcagcggca gcagcggcag 5520
cagcggcggg ggtgggggca gcagcagccg ccccgcctcc cactcccatg cccaccagca 5580
ctcgcccatc tcccctcgga cccaggatgc cctccagcag agacccagtg tgcttcacaa 5640
cacaggcatg aagggtatca tcaccgctgt ggagcccagc aagcccacgg tcctgaggtc 5700
cacctccacc tcctcacccg ttcgcccagc tgccacattc ccacctgcca cccactgccc 5760
actgggcggc accctcgatg gggtctaccc taccctcatg gagcccgtct tgctgcccaa 5820
ggaggccccc cgggtcgccc ggccagagcg gccccgagca gacaccggcc atgccttcct 5880
cgccaagccc ccagcccgct ccgggctgga gcccgcctcc tcccccagca agggctcgga 5940
gcccccggccc ctagtgcctc ctgtctctgg ccacgccacc atcgcccgca cccctgcgaa 6000
gaacctcgca cctcaccacg ccagcccgga cccgccggcg ccacctgcct cggcctcgga 6060
cccgcaccgg gaaaagactc aaagtaaacc ctttccatc caggaactgg aactccgttc 6120
tctgggttac cacggcagca gctacagccc cgaaggggtg gagcccgtca gccctgtgag 6180
ctcacccagt ctgacccacg acaaggggct ccccaagcac ctggaagagc tcgacaagag 6240
ccacctggag ggggagctgc ggcccaagca gccaggcccc gtgaagcttg gcggggaggc 6300
cgcccacctc ccacacctgc ggccgctgcc tgagagccag ccctcgtcca gcccgctgct 6360
ccagaccgcc ccaggggtca aaggtcacca gcgggtggtc accctggccc agcacatcag 6420
tgaggtcatc acacaggact acacccggca ccacccacag cagctcagcg caccctgcc 6480
cgcccccctc tactccttcc ctgggccag ctgcccgtc ctggacctcc gccgccacc 6540
cagtgacctc tacctcccgc ccccggacca tggtgccccg gcccgtggct cccccacag 6600
cgaaggggc aagaggtctc cagagccaaa caagacgtcg gtcttgggtg gtggtgagga 6660
cggtattgaa cctgtgtccc caccggaggg catgacggag ccaggcact cccggagtgc 6720
tgtgtaccg ctgctgtacc gggatgggga acagacgag cccagcagga tgggctccaa 6780
gtctccaggc aacaccagcc agccgccagc cttcttcagc aagctgaccg agagcaactc 6840
cgccatggtc aagtccaaga agcaagagat caacaagaag ctgaacaccc acaaccggaa 6900
tgagcctgaa tacaatatca gccagcctgg gacggagatc ttcaatatgc ccgccatcac 6960
cggaacaggc cttatgacct atagaagcca ggcggtgcag gaacatgcca gcaccaacat 7020
ggggctggag gccataatta gaaaggcact catgggtaaa tatgaccagt gggaagagtc 7080
```

9

```
cccgccgctc agcgccaatg cttttaaccc tctgaatgcc agtgccagcc tgcccgctgc 7140
tatgcccata accgctgctg acggacggag tgaccacaca ctcacctcgc caggtggcgg 7200
cgggaaggcc aaggtctctg gcagacccag cagccgaaaa gccaagtccc cggcccccggg 7260
cctggcatct ggggaccggc caccctctgt ctcctcagtg cactcggagg gagactgcaa 7320
ccgccggacg ccgctcacca accgcgtgtg ggaggacagg ccctcgtccg caggttccac 7380
gccattcccc tacaacccc tgatcatgcg gctgcaggcg ggtgtcatgg cttccccacc 7440
cccaccgggc ctccccgcgg gcagcgggcc cctcgctggc ccccaccacg cctgggacga 7500
ggagcccaag ccactgctct gctcgcagta cgagacactc tccgacagcg agtgactcag 7560
aacagggcgg ggggggcgg gcggtgtcag gtcccagcga gccacaggaa cggccctgca 7620
ggagcggggc ggctgccgac tcccccaacc aaggaaggag cccctgagtc cgcctgcgcc 7680
tccatccatc tgtccgtcca gagccggcat ccttgcctgt ctaaagcctt aactaagact 7740
cccgccccgg gctggccctg tgcagacctt actcagggga tgtttacctg gtgctcggga 7800
agggaggga aggggccggg gaggggggcac ggcaggcgtg tggcagccac acacaggcgg 7860
ccagggcggc cagggaccca aagcaggatg accacgcacc tccacgccac tgcctccccc 7920
gaatgcattt ggaaccaaag tctaaactga gctcgcagcc cccgcgccct ccctccgcct 7980
cccatcccgc ttagcgctct ggacagatgg acgcaggccc tgtccagccc ccagtgcgct 8040
cgttccggtc cccacagact gccccagcca acgagattgc tggaaaccaa gtcaggccag 8100
gtgggcggac aaaagggcca ggtgcggcct ggggggaaacg gatgctccga ggactggact 8160
gtttttttca cacatcgttg ccgcagcggt gggaaggaaa ggcagatgta aatgatgtgt 8220
tggtttacag ggtatatttt tgataccttc aatgaattaa ttcagatgtt ttacgcaagg 8280
aaggacttac ccagtattac tgctgctgtg cttttgatct ctgcttaccg ttcaagaggc 8340
gtgtgcaggc cgacagtcgg tgaccccatc actcgcagga ccaaggggc ggggactgct 8400
cgtcacgccc cgctgtgtcc tccctccctc ccttccttgg gcagaatgaa ttcgatgcgt 8460
attctgtggc cgccatttgc gcagggtggt ggtattctgt catttacaca cgtcgttcta 8520
attaaaaagc gaattatact ccaaaaaaaa aaaaaaaaa a                           8561
```

<210> 5
<211> 2517
<212> PRT
<213> Homo sapiens

<400> 5

```
Met Ser Gly Ser Thr Gln Leu Val Ala Gln Thr Trp Arg Ala Thr Glu
 1               5                  10                  15

Pro Arg Tyr Pro Pro His Ser Leu Ser Tyr Pro Val Gln Ile Ala Arg
            20                  25                  30

Thr His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Ser Arg Asp
        35                  40                  45

Tyr Ala Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
    50                  55                  60

Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Asn Glu Arg Ser Gln
65                  70                  75                  80

Glu Leu His Leu Arg Pro Glu Ser His Ser Tyr Leu Pro Glu Leu Gly
                85                  90                  95

Lys Ser Glu Met Glu Phe Ile Glu Ser Lys Arg Pro Arg Leu Glu Leu
            100                 105                 110

Leu Pro Asp Pro Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
            115                 120                 125
```

10

Pro Ala Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Thr Gly Lys
    130   135   140

Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Thr Asp Pro Glu Leu
145   150   155   160

Glu Leu Val Pro Pro Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Met
                165   170   175

Asp Arg Val Asp Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys
            180   185   190

Leu Lys Lys Lys Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro Pro
        195   200   205

Glu Pro Glu Lys Pro Val Ser Pro Pro Pro Ile Glu Ser Lys His Arg
    210   215   220

Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu Ala
225   230   235   240

Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro Leu
            245   250   255

Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys Ile
            260   265   270

Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr Phe Lys Arg Arg Asn
        275   280   285

His Ala Arg Lys Gln Trp Lys Gln Lys Phe Cys Gln Arg Tyr Asp Gln
    290   295   300

Leu Met Glu Ala Leu Glu Lys Lys Val Glu Arg Ile Glu Asn Asn Pro
305   310   315   320

Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu Tyr Tyr Glu Lys Gln
            325   330   335

Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln Glu Arg Met Gln Ser
            340   345   350

Arg Val Gly Gln Arg Gly Ser Gly Leu Ser Met Ser Ala Ala Arg Ser
        355   360   365

Glu His Glu Val Ser Glu Ile Ile Asp Gly Leu Ser Glu Gln Glu Asn
    370   375   380

Leu Glu Lys Gln Met Arg Gln Leu Ala Val Ile Pro Pro Met Leu Tyr
385   390   395   400

Asp Ala Asp Gln Gln Arg Ile Lys Phe Ile Asn Met Asn Gly Leu Met
            405   410   )   415

Ala Asp Pro Met Lys Val Tyr Lys Asp Arg Gln Val Met Asn Met Trp
    420   425   430

11

```
Ser Glu Gln Glu Lys Glu Thr Phe Arg Glu Lys Phe Met Gln His Pro
        435             440             445
Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu Arg Lys Thr Val Ala
        450             455             460
Glu Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr Lys
465             470             475             480
Ser Leu Val Arg Arg Ser Tyr Arg Arg Gly Lys Ser Gln Gln Gln
            485             490             495
Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Pro Met
        500             505             510
Pro Arg Ser Ser Gln Glu Glu Lys Asp Glu Lys Glu Lys Glu Lys Glu
        515             520             525
Ala Glu Lys Glu Glu Glu Lys Pro Glu Val Glu Asn Asp Lys Glu Asp
    530             535             540
Leu Leu Lys Glu Lys Thr Asp Asp Thr Ser Gly Glu Asp Asn Asp Glu
545             550             555             560
Lys Glu Ala Val Ala Ser Lys Gly Arg Lys Thr Ala Asn Ser Gln Gly
            565             570             575
Arg Arg Lys Gly Arg Ile Thr Arg Ser Met Ala Asn Glu Ala Asn Ser
        580             585             590
Glu Glu Ala Ile Thr Pro Gln Gln Ser Ala Glu Leu Ala Ser Met Glu
        595             600             605
Leu Asn Glu Ser Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala Lys
    610             615             620
Lys Gly Leu Leu Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met
625             630             635             640
Val Gly Ser Lys Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr
            645             650             655
Lys Lys Arg Gln Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys
            660             665             670
Met Glu Lys Glu Arg Asn Ala Arg Arg Lys Lys Lys Lys Ala Pro Ala
        675             680             685
Ala Ala Ser Glu Glu Ala Ala Phe Pro Pro Val Val Glu Asp Glu Glu
    690             695             700
Met Glu Ala Ser Gly Val Ser Gly Asn Glu Glu Glu Met Val Glu Glu
705             710             715             720
Ala Glu Ala Leu His Ala Ser Gly Asn Glu Val Pro Arg Gly Glu Cys
        725             730             735
```

12

```
Ser Gly Pro Ala Thr Val Asn Asn Ser Ser Asp Thr Glu Ser Ile Pro
            740             745             750

Ser Pro His Thr Glu Ala Ala Lys Asp Thr Gly Gln Asn Gly Pro Lys
        755             760             765

Pro Pro Ala Thr Leu Gly Ala Asp Gly Pro Pro Pro Gly Pro Pro Thr
    770.            775             780

Pro Pro Arg Arg Thr Ser Arg Ala Pro Ile Glu Pro Thr Pro Ala Ser
785             790             795             800

Glu Ala Thr Gly Ala Pro Thr Pro Pro Ala Pro Pro Ser Pro Ser
                805             810             815

Ala Pro Pro Pro Val Val Pro Lys Glu Glu Lys Glu Glu Glu Thr Ala
            820             825             830

Ala Ala Pro Pro Val Glu Glu Gly Glu Glu Gln Lys Pro Pro Ala Ala
        835             840             845

Glu Glu Leu Ala Val Asp Thr Gly Lys Ala Glu Glu Pro Val Lys Ser
    850             855             860

Glu Cys Thr Glu Glu Ala Glu Glu Gly Pro Ala Lys Gly Lys Asp Ala
865             870             875             880

Glu Ala Ala Glu Ala Thr Ala Glu Gly Ala Leu Lys Ala Glu Lys Lys
            885             890             895

Glu Gly Gly Ser Gly Arg Ala Thr Thr Ala Lys Ser Ser Gly Ala Pro
        900             905             910

Gln Asp Ser Asp Ser Ser Ala Thr Cys Ser Ala Asp Glu Val Asp Glu
    915             920             925

Ala Glu Gly Gly Asp Lys Asn Arg Leu Leu Ser Pro Arg Pro Ser Leu
    930             935             940

Leu Thr Pro Thr Gly Asp Pro Arg Ala Asn Ala Ser Pro Gln Lys Pro
945             950             955             960

Leu Asp Leu Lys Gln Leu Lys Gln Arg Ala Ala Ala Ile Pro Pro Ile
            965             970             975

Gln Val Thr Lys Val His Glu Pro Pro Arg Glu Asp Ala Ala Pro Thr
            980             985             990

Lys Pro Ala Pro Pro Ala Pro Pro Pro Pro Gln Asn Leu Gln Pro Glu
        995             1000            1005

Ser Asp Ala Pro Gln Gln Pro Gly Ser Ser Pro Arg Gly Lys Ser Arg
    1010            1015            1020

Ser Pro Ala Pro Pro Ala Asp Lys Glu Ala Phe Ala Ala Glu Ala Gln
1025            1030            1035            1040
```

13

Lys Leu Pro Gly Asp Pro Pro Cys Trp Thr Ser Gly Leu Pro Phe Pro
            1045   1050   1055

Val Pro Pro Arg Glu Val Ile Lys Ala Ser Pro His Ala Pro Asp Pro
            1060   1065   1070

Ser Ala Phe Ser Tyr Ala Pro Pro Gly His Pro Leu Pro Leu Gly Leu
            1075   1080   1085

His Asp Thr Ala Arg Pro Val Leu Pro Arg Pro Pro Thr Ile Ser Asn
    1090   1095   1100

Pro Pro Pro Leu Ile Ser Ser Ala Lys His Pro Ser Val Leu Glu Arg
1105   1110   1115   1120

Gln Ile Gly Ala Ile Ser Gln Gly Met Ser Val Gln Leu His Val Pro
            1125   1130   1135

Tyr Ser Glu His Ala Lys Ala Pro Val Gly Pro Val Thr Met Gly Leu
        1140   1145   1150

Pro Leu Pro Met Asp Pro Lys Lys Leu Ala Pro Phe Ser Gly Val Lys
        1155   1160   1165

Gln Glu Gln Leu Ser Pro Arg Gly Gln Ala Gly Pro Pro Glu Ser Leu
    1170   1175   1180

Gly Val Pro Thr Ala Gln Glu Ala Ser Val Leu Arg Gly Thr Ala Leu
1185   1190   1195   1200

Gly Ser Val Pro Gly Gly Ser Ile Thr Lys Gly Ile Pro Ser Thr Arg
        1205   1210   1215

Val Pro Ser Asp Ser Ala Ile Thr Tyr Arg Gly Ser Ile Thr His Gly
    1220   1225   1230

Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr Ile Thr Arg Ile Ile Gly
        1235   1240   1245

Glu Asp Ser Pro Ser Arg Leu Asp Arg Gly Arg Glu Asp Ser Leu Pro
    1250   1255   1260

Lys Gly His Val Ile Tyr Glu Gly Lys Lys Gly His Val Leu Ser Tyr
1265   1270   1275   1280

Glu Gly Gly Met Ser Val Thr Gln Cys Ser Lys Glu Asp Gly Arg Ser
            1285   1290   1295

Ser Ser Gly Pro Pro His Glu Thr Ala Ala Pro Lys Arg Thr Tyr Asp
        1300   1305   1310

Met Met Glu Gly Arg Val Gly Arg Ala Ile Ser Ser Ala Ser Ile Glu
        1315   1320   1325

Gly Leu Met Gly Arg Ala Ile Pro Pro Glu Arg His Ser Pro His His
    1330   1335   1340

14

```
Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr Gln Gly Ile Pro
1345                1350                1355                1360

Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg Arg Glu Ala Lys
                1365                1370                1375

Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro Pro Pro Ser Arg Asp
            1380                1385                1390

Leu Thr Glu Ala Tyr Lys Thr Gln Ala Leu Gly Pro Leu Lys Leu Lys
            1395                1400                1405

Pro Ala His Glu Gly Leu Val Ala Thr Val Lys Glu Ala Gly Arg Ser
    1410                1415                1420

Ile His Glu Ile Pro Arg Glu Glu Leu Arg His Thr Pro Glu Leu Pro
1425                1430                1435                1440

Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser Ile Thr Gln Gly Thr Pro
                1445                1450                1455

Leu Lys Tyr Asp Thr Gly Ala Ser Thr Thr Gly Ser Lys Lys His Asp
            1460                1465                1470

Val Arg Ser Leu Ile Gly Ser Pro Gly Arg Thr Phe Pro Pro Val His
    1475                1480                1485

Pro Leu Asp Val Met Ala Asp Ala Arg Ala Leu Glu Arg Ala Cys Tyr
    1490                1495                1500

Glu Glu Ser Leu Lys Ser Arg Pro Gly Thr Ala Ser Ser Ser Gly Gly
1505                1510                1515                1520

Ser Ile Ala Arg Gly Ala Pro Val Ile Val Pro Glu Leu Gly Lys Pro
            1525                1530                1535

Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly Ala Pro Phe Ala Gly
            1540                1545                1550

His Leu Pro Arg Gly Ser Pro Val Thr Met Arg Glu Pro Thr Pro Arg
    1555                1560                1565

Leu Gln Glu Gly Ser Leu Ser Ser Ser Lys Ala Ser Gln Asp Arg Lys
    1570                1575                1580

Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys Ser Pro His Ser Thr Val
1585                1590                1595                1600

Pro Glu His His Pro His Pro Ile Ser Pro Tyr Glu His Leu Leu Arg
            1605                1610                1615

Gly Val Ser Gly Val Asp Leu Tyr Arg Ser His Ile Pro Leu Ala Phe
        1620                1625                1630

Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro Leu Asp Ala Ala Ala Ala
        1635                1640                1645
```

15

Tyr Tyr Leu Pro Arg His Leu Ala Pro Asn Pro Thr Tyr Pro His Leu
    1650   1655   1660

Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro Asp Thr Ala Ala Leu Glu
1665   1670   1675   1680

Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln Met His
            1685   1690   1695

His Asn Thr Ala Thr Ala Met Ala Gln Arg Ala Asp Met Leu Arg Gly
        1700   1705   1710

Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu Asn Tyr Ala Ala Gly Pro
        1715   1720   1725

Arg Gly Ile Ile Asp Leu Ser Gln Val Pro His Leu Pro Val Leu Val
    1730   1735   1740

Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala Met Asp Arg Leu Ala Tyr
1745   1750   1755   1760

Leu Pro Thr Ala Pro Gln Pro Phe Ser Ser Arg His Ser Ser Ser Pro
            1765   1770   1775

Leu Ser Pro Gly Gly Pro Thr His Leu Thr Lys Pro Thr Thr Thr Ser
        1780   1785   1790

Ser Ser Glu Arg Glu Arg Asp Arg Asp Arg Glu Arg Asp Arg Asp Arg
        1795   1800   1805

Glu Arg Glu Lys Ser Ile Leu Thr Ser Thr Thr Thr Val Glu His Ala
    1810   1815   1820

Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ser Ser Gly Ser
1825   1830   1835   1840

Ser Gly Gly Gly Gly Gly Ser Ser Ser Arg Pro Ala Ser His Ser His
            1845   1850   1855

Ala His Gln His Ser Pro Ile Ser Pro Arg Thr Gln Asp Ala Leu Gln
        1860   1865   1870

Gln Arg Pro Ser Val Leu His Asn Thr Gly Met Lys Gly Ile Ile Thr
    1875   1880   1885

Ala Val Glu Pro Ser Lys Pro Thr Val Leu Arg Ser Thr Ser Thr Ser
    1890   1895   1900

Ser Pro Val Arg Pro Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro
1905   1910   1915   1920

Leu Gly Gly Thr Leu Asp Gly Val Tyr Pro Thr Leu Met Glu Pro Val
            1925   1930   1935

Leu Leu Pro Lys Glu Ala Pro Arg Val Ala Arg Pro Glu Arg Pro Arg
        1940   1945   1950

16

```
Ala Asp Thr Gly His Ala Phe Leu Ala Lys Pro Pro Ala Arg Ser Gly
    1955              1960              1965

Leu Glu Pro Ala Ser Ser Pro Ser Lys Gly Ser Glu Pro Arg Pro Leu
    1970              1975              1980

Val Pro Pro Val Ser Gly His Ala Thr Ile Ala Arg Thr Pro Ala Lys
1985              1990              1995              2000

Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro Ala Pro Pro Ala
              2005              2010              2015

Ser Ala Ser Asp Pro His Arg Glu Lys Thr Gln Ser Lys Pro Phe Ser
         2020              2025              2030

Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Gly Ser Ser Tyr
    2035              2040              2045

Ser Pro Glu Gly Val Glu Pro Val Ser Pro Val Ser Ser Pro Ser Leu
    2050              2055              2060

Thr His Asp Lys Gly Leu Pro Lys His Leu Glu Glu Leu Asp Lys Ser
2065              2070              2075              2080

His Leu Glu Gly Glu Leu Arg Pro Lys Gln Pro Gly Pro Val Lys Leu
              2085              2090              2095

Gly Gly Glu Ala Ala His Leu Pro His Leu Arg Pro Leu Pro Glu Ser
         2100              2105              2110

Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro Gly Val Lys Gly
         2115              2120              2125

His Gln Arg Val Val Thr Leu Ala Gln His Ile Ser Glu Val Ile Thr
    2130              2135              2140

Gln Asp Tyr Thr Arg His His Pro Gln Gln Leu Ser Ala Pro Leu Pro
2145              2150              2155              2160

Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser Cys Pro Val Leu Asp Leu
         2165              2170              2175

Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro Pro Pro Asp His Gly Ala
         2180              2185              2190

Pro Ala Arg Gly Ser Pro His Ser Glu Gly Gly Lys Arg Ser Pro Glu
         2195              2200              2205

Pro Asn Lys Thr Ser Val Leu Gly Gly Gly Glu Asp Gly Ile Glu Pro
    2210              2215              2220

Val Ser Pro Pro Glu Gly Met Thr Glu Pro Gly His Ser Arg Ser Ala
2225              2230              2235              2240

Val Tyr Pro Leu Leu Tyr Arg Asp Gly Glu Gln Thr Glu Pro Ser Arg
         2245              2250              2255
```

17

```
Met Gly Ser Lys Ser Pro Gly Asn Thr Ser Gln Pro Pro Ala Phe Phe
         2260             2265             2270

Ser Lys Leu Thr Glu Ser Asn Ser Ala Met Val Lys Ser Lys Lys Gln
         2275             2280             2285

Glu Ile Asn Lys Lys Leu Asn Thr His Asn Arg Asn Glu Pro Glu Tyr
     2290             2295             2300

Asn Ile Ser Gln Pro Gly Thr Glu Ile Phe Asn Met Pro Ala Ile Thr
 2305             2310             2315             2320

Gly Thr Gly Leu Met Thr Tyr Arg Ser Gln Ala Val Gln Glu His Ala
             2325             2330             2335

Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala Leu Met Gly
         2340             2345             2350

Lys Tyr Asp Gln Trp Glu Glu Ser Pro Pro Leu Ser Ala Asn Ala Phe
         2355             2360             2365

Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro Ala Ala Met Pro Ile Thr
     2370             2375             2380

Ala Ala Asp Gly Arg Ser Asp His Thr Leu Thr Ser Pro Gly Gly Gly
 2385             2390             2395             2400

Gly Lys Ala Lys Val Ser Gly Arg Pro Ser Ser Arg Lys Ala Lys Ser
             2405             2410             2415

Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro Ser Val Ser Ser
             2420             2425             2430

Val His Ser Glu Gly Asp Cys Asn Arg Arg Thr Pro Leu Thr Asn Arg
         2435             2440             2445

Val Trp Glu Asp Arg Pro Ser Ser Ala Gly Ser Thr Pro Phe Pro Tyr
     2450             2455             2460

Asn Pro Leu Ile Met Arg Leu Gln Ala Gly Val Met Ala Ser Pro Pro
 2465             2470             2475             2480

Pro Pro Gly Leu Pro Ala Gly Ser Gly Pro Leu Ala Gly Pro His His
             2485             2490             2495

Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu Cys Ser Gln Tyr Glu Thr
             2500             2505             2510

Leu Ser Asp Ser Glu
         2515
```

<210> 6
<211> 8388
<212> DNA
<213> Mus musculus

18

```
<220>
<221> modified_base
<222> (109)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8173)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8180)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8302)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8343)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8359)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (8384)
<223> a, c, t, g, other or unknown

<400> 6
cttaaaaaaa aaacccttac ttgtggttaa aggaaaagaa ataaagactt aggaaaaatg 60
taattttcca gggggtacct acacccaaga catatggttc tcaagaggna ctcagcatat 120
cactttgatt ccagagaagc tacaaaagtc attaccaaac tccaggctgg aaagcagtgc 180
tcatactaaa tatttaaaca tttaaagacc tgattaagag acatcaaagg ctttatacca 240
ggggcacacc aacagagaca ggctttttca aggataattt atgtctgccc attgtcttct 300
ggcttaggag acatagaggg aaacatcacc taggaaaacc agtaaccaat gtgtaccatc 360
caggagttat tctatgacaa aaccaaaagt tttgttcttg tgtacttctc tgtgcaccat 420
ctttctatat ctatttagaa aacaaaacaa attttggtaa cacgcttgtg tataaagagc 480
aggacagcgg tgtcacagat caacctagaa agtaattatt taacgagtaa atgactcata 540
taggacaagg caagctgtga ctttcaacct gttctgtctc gtgccgaatt cggcacgagc 600
caaagcctac ctggacccta ccaccatgtc aggatccaca cagcctgtgg cacagacatg 660
gcgggctgct gagccccgct acccacccca tggcatctcc tacccggtgc agatagcccg 720
gtcccacacg gacgtggggc tgcttgagta ccaacaccac ccccgtgact acacctcaca 780
cctgtcaccc ggttccatca tccagccaca gaggaggcgg ccctcactgc tgtcagagtt 840
ccagcctggg agtgaacggt ctcaggagct ccacctgcgc cctgagtccc gcacgttcct 900
gcctgagctg ggcaagcccg acatagaatt caccgagagc aagcgccccc gcctggagct 960
actacccgat accctgctgc gcccatcacc cctgctggcc actgggcagc cgagtgggtc 1020
tgaagacctt accaaggacc gtagcctggc aggcaagctg gagcctgtgt cacctcccag 1080
tccccgcac gctgaccctg agctagagct ggcgccatct cgactgtcca aggaggagct 1140
gatccagaac atggaccgcg tggaccgtga gatcaccatg gtagagcagc agatctccaa 1200
gctgaagaag aagcagcaac agttggagga ggaggccgcc aagccgcccg aacccgagaa 1260
gcctgtgtcg ccaccaccca tagaatcaaa gcaccgaagc ctggtccaga tcatctacga 1320
```

19

```
tgagaaccgg aagaaagccg aagccgcaca ccggatccta gaaggcctgg ggccccaggt 1380
ggagctgcct ctgtacaacc agccgtctga cacacgccag taccatgaaa acatcaaaat 1440
aaaccaggcg atgcggaaga agctgatctt gtactttaag cggaggaacc acgcgcgcaa 1500
gcagtgggaa cagcgcttct gccagcgcta tgaccagctc atggaggcgt gggagaagaa 1560
ggtagagcgc atagagaaca atccgcgaag gagggccaag gagagcaagg tgaggagta 1620
ctacgagaaa cagttcccgg agatccgcaa gcagcgggag ctgcaggagc gcatgcagag 1680
caggggtgggc cagcgtggca gtgggctctc catgtcggct gcccgcagtg agcatgaggt 1740
ttctgagatc attgatggct tgtctgagca ggagaacctg gagaagcaga tgcgccagct 1800
ggccgtgatc ccgcccatgt tgtacgacgc ggaccagcag aggatcaagt tcatcaacat 1860
gaatggactc atggatgacc ccatgaaggt ctacaaggac cgtcaggtta ccaacatgtg 1920
gagcgagcag gagagggaca ccttccgtga gaagtttatg cagcacccta agaactttgg 1980
cctgattgcc tcattcctgg agagaaagac ggtcgctgag tgtgtcctct attactacct 2040
gaccaagaag aatgaaaatt acaagagctt ggtgaggcgg agctatcggc gccgtggcaa 2100
gagccagcag cagcagcagc agcaacaaca gcagcagcag cagcagatgg cacggagcag 2160
ccaggaggag aaggaggaga aggagaagga gaaggaggcc gacaaggagg aagagaagca 2220
ggatgcggag aacgagaagg aagaactcag caaggagaag acagacgaca cttctggcga 2280
ggacaaccat gagaaagagg ccgtggcctc caaaggccgc aaaactgcca acagccaagg 2340
ccgccgcaaa ggccgtatca cgcgctccat ggccaacgag gccaaccatg aggagacagc 2400
caccccacag caaagttcag agctggcttc catggagatg aacgagagtt ctcgctggac 2460
tgaggaagag atggagacag caaagaaagg cctcctggaa catgggagga actggtcagc 2520
cattgcccgc atggtgggct ccaagaccgt gtcccagtgt aagaacttct acttcaacta 2580
caagaagagg cagaacctgg acgaaatcct tcagcagcac aagctaaaga tggagaagga 2640
gaggaacgct cggaggaaga agaagaagac cccagctgcg gcgagcgagg agacagcctt 2700
cccacctgcc gctgaggacg aagagatgga agcatcaggc gcaagtgcca atgaggaaga 2760
gctggcggag gaggcagaag cctcacaggc ctctgggaat gaggttccca gagttgggga 2820
gtgcagtggc ccagctgctg tcaacaacag ctctgatact gagagtgtcc catccccgcg 2880
ttcagaagcc atgaaggaca ctgggcctaa acccactggc actgaagcat tgcccgctgc 2940
cacccagcca cctgttcctc ctccagaaga accggcagta gcccctgctg agccctcccc 3000
agtccctgat gccagtggcc caccatcccc agagccttcc catcacctgc cgcacccccg 3060
gctactgtgg acaaggatga acaagaagcc ccggctgctc cagctcccca gacagaggat 3120
gccaaggagc agaagtctga ggccgaggag atcgatgtgg gaaaagccag aggagcccga 3180
ggcctctgag gagccccccgg agagtgtaaa gagtgaccac aaggaggaga ccgaggaaga 3240
gcctgaagac aaagccaagg gcacagaggc cattgaaact gtgtctgagg caccacttaa 3300
ggtggaggag gctggtagca aggcagctgt gaccaagggt tccagctcag gtgccaccca 3360
ggacagtgac ttcagtgcca cctgcagtgc cgatgaggtg gacgaacccg aaggaggtga 3420
caagggcagg ctgctgtcac caaggccag cctcctcacc ccggctggag atccccgggc 3480
cagtacctcg ccccagaagc cgctggacct gaagcagctg aagcagcgag cagccgccat 3540
cccccctatc caggtcacca aggtccatga gcccccccgg gaggacacag tacccccaaa 3600
gccagttccc cctgtgcctc cacccacgca gcacctacag ccagaggtg acgtgtctca 3660
gcagtcggga ggaagtccac gtggcaagtc ccgcagccca gtgcctcctg ccgagaaaga 3720
ggcagagaaa cccgcattct ttccggcttt cccaactgag ggcccaaagc taccgactga 3780
gcccccacgc tggtcatcgg gcctgccctt ccccatccct ccacgggagg tgatcaagac 3840
ttccccacac gccgctgacc cctctgcctt ctcctacaca ccccccggtc acccgctgcc 3900
tctgggcctc cacgatagtg cccggcccgt cctgccacgt ccccccatct ctaacccccc 3960
acccctcatc tcctctgcca agcatcccgg cgtacttgag aggcagctgg gtgccatctc 4020
ccagcagggg atgtcagtcc agcttcgtgt gcctcactca gagcatgcca aggccccccat 4080
gggccctctc accatggggc tgccccttgc cgtggaccct aagaagctgg ggacagcact 4140
gggctccgcc accagtggaa gcatcaccaa gggcctcccc agtacccggg ctgcagacgg 4200
cccagctac agaggctcta tcacccacgg cacgcccgca gacgtcctct acaagggtac 4260
catcagcagg atcgtcggtg aggacagccc aagtcgcctt gaccgggcac gagaggacac 4320
cctgcccaag ggccatgtca tctatgaggg caagaaaggc cacgtcctat cctatgaagg 4380
tggtatgtcc gtgtcacagt gctctaagga ggatggaagg agcagctcgg gcccaccccca 4440
tgagactgcc gcccctaaac gcacctatga catgatggag ggccgtgtag gcaggactgt 4500
cacctcagcc agcatagagg gactcatggg ccgcgccatc cctgagcagc acagccccca 4560
cctcaaggag cagcatcaca tccgaggctc catcacgcaa ggcatcccga ggtcctatgt 4620
ggaggcgcag gaggactact acggcgggga ggccaagctc ttgaagcgag aagggacacc 4680
accaccccca ccaccacctc gggacctgac tgagacctac aagccccggc ccctggaccc 4740
tctgggtccc ctgaagctga agccgactca cgagggtgtg gtagcaactg tgaaggaggc 4800
```

```
gggccgctct atccatgaga tcccgagaga ggagctgcgc cgcacacctg agctacccct 4860
ggcaccacgg cctctgaagg agggttccat cacccagggc accccactca agtacgactc 4920
tggggcaccc tccactggca ccaagaaaca cgacgtgcgc tccatcatcg gcagccccgg 4980
ccggcctttc cctgccctgc acccgctgga cataatggct gacgcccggg cactggagcg 5040
tgcctgctat gaagagagtc tgaagagccg gtcagggacc agcagtggtg cagggggctc 5100
catcacacgt ggggctccag tcgtcgtgcc tgaactgggc aagccacggc aaagcccact 5160
gacttacgaa gaccacgggg cacccttcac cagtcacctg ccacgtggct ccctgtgac 5220
cacgagggag cccacgccac gccttcagga aggcagcctc ctatccagca aggcgtccca 5280
ggaccggaag ctgacatcta caccccggga gatcgccaag tccccacaca gcactgtgcc 5340
cgagcaccac cctcacccca tctccccta tgagcacttg ctccggggcg tgactggtgt 5400
ggacctgtac cgtggtcaca tcccattggc ctttgacccc acctccatac cccgagggat 5460
ccctctggaa gcagcagccg cagcctacta cctgccccgg cacttggccc ccagccccac 5520
ctacccacac ctgtacccac cttacctcat ccgcggctac cctgacacgg cggccctgga 5580
gaaccgccag accatcatca atgactacat cacctcgcag cagatgcacc acaacgctgc 5640
ctccgccatg gcccagcgtg ctgacatgct gaggggtctg tcaccgcgag agtcctcgct 5700
ggccctcaat tatgccgctg gcccaagagg cattatcgac ctgtcccaag tgccacacct 5760
gcccgtgctg gtgccaccaa cgccaggcac ccctgccacc gccatcgacc gccttgccta 5820
cctccccact gcgcccccac ccttcagcag ccgccacagt agctcaccgc tgtccccagg 5880
aggccccact cacctagcta aaccaactgc cacatcttca tcggagcggg aacgggaacg 5940
tgagcgggaa cgagacaagt ccatcctcac gtctaccact acagtggagc atgcacccat 6000
ctggagacct ggtacggagc agagcagcgg ggctggggc agcagccgcc ccgcctccca 6060
cacccaccag cactcgccca tctccccccg gaccaggac gccttgcagc agaggcccag 6120
tgtgctgcac aacacgagca tgaagggcgt ggtcacctcc gtggaacccg gcacgcccac 6180
ggtcctgagg tgggccaggt ccacctccac ctcttcgcct gtccgcccag ctgccacatt 6240
cccacctgcc acccactgcc cacttggtgg caccccttgaa ggggtctacc ctaccctcat 6300
ggagcccgtc ctgttaccca aggagacctc tcgggtcgcc cggcccgagc gggcccgggt 6360
ggacgctggc catgcctttc ttaccaaacc cccgggccgg gagcccgcct cctcacccag 6420
caagagctcc gagccccgat ccctagcacc ccccagctcc agccacacag ccatcgcccg 6480
caccccagca aagaaccttg cacccccacca tgccagtccg gaccgccgg cgcccacctc 6540
ggcctcagat ctgcaccgag aaaagactca aagtaaaccc ttttccatcc aggaattgga 6600
actccgttct ctgggttacc acagtggagc tggctacagc cccgatgggg tggagcccat 6660
cagcccggtg agctccccca gcctgaccca cgacaagggg ctctccaaac ctctggaaga 6720
gctagagaag agccacttgg aaggggagct gcggcacaag cagccaggcc ccatgaagct 6780
cagcgcggag gctgcccatc tcccacatct gcggccactg cccgagagcc agccctcatc 6840
cagcccactc ctccagactg ccccaggcat caaaggtcac cagagggtgg tcaccctggc 6900
tcagcacatc agcgaggtca ttacgcagga ctacacgcgc caccaccgc agcagctcag 6960
tggcccccctt cccgccccctc tctactcctt tcccggagcc agctgccctg tcctggatct 7020
tcgccgccca cccagtgacc tctacctccc accccccgac catggcaccc cagcccgggg 7080
atcccccac agtgaagggg gcaaaaggtc cccagaaccc agcaaaacat cggtcctggg 7140
cagcagcgag gatgccattg agcctgtgtc cccaccagag ggcatgactg agccaggaca 7200
tgctcggagc actgcgtacc cactgctgta tcgagacggg gaacagggcg agcccaggat 7260
gggtctagag tctccaggca acaccagcca gccgccaacc ttcttcagta agctgactga 7320
gagcaactcc gccatggtga agtcgaagaa gcaggagatc aacaagaaac tcaacaccca 7380
caaccggaac gagccagaat acaatattgg ccagcctggg acggaaatct tcaacatgcc 7440
cgccatcact ggagcaggcc ttatgacctg tagaagccag gcggtgcaag aacacgccag 7500
caccaacatg gggctagagg ccattattag aaaggcactc atgggtaaat atgatcagtg 7560
ggaagagccc cgccgctcg cgcgccaatgc ttttaaccct ctgaatgcca gcgccagtct 7620
gcccgctgct gctatgccca taaccactgc tgacggacgg agtgaccacg cactcacctc 7680
gccaggtgga ggtgggaaag ccaaggtctc tggcagacct agcagccgaa aagccaagtc 7740
gccagcacca ggcctagcgt ccggagaccg accccccttct gtctcctcag tacactcaga 7800
gggggactgc aatcgccgaa caccactcac caaccgtgtg tgggaggacc ggccctcatc 7860
tgcagggtcc acgccattcc cctacaaccc tttgattatg aggctacagg caggtgtcat 7920
ggcctccccg cccccacctg gccttgcggc aggcagcggg ccctagctg tccccacca 7980
cgcctgggat gaggagccca agccactgct gtgttcacag tatgagacac tctcggacag 8040
cgagtgacca cggattgggg gggagcggtg ccaggtcccg cacaaggcag aagcagccca 8100
gcatggagca gacagctgct gactcccgag actgaggaag gagccctga gtctgcctgc 8160
gcgtccatcc gtncgtcgtn cactcatctg tccatccaga ctggcattc tgcctgtcta 8220
aagccttaac taagacttcc accccgggct ggccctgcgc agtgaccta cactcagggg 8280
```

21

```
attgtttacc ttggtgctcg anaaggggga gtggacagga aggggaggga caagccgggc 8340
cangaggggg ggggacaanc aattcgtgtg tcaagtcgca ctcntgct              8388
```

<210> 7
<211> 2473
<212> PRT
<213> Mus musculus

<400> 7

```
Met Ser Gly Ser Thr Gln Pro Val Ala Gln Thr Trp Arg Ala Ala Glu
  1           5               10              15

Pro Arg Tyr Pro Pro His Gly Ile Ser Tyr Pro Val Gln Ile Ala Arg
             20              25              30

Ser His Thr Asp Val Gly Leu Leu Glu Tyr Gln His His Pro Arg Asp
         35              40              45

Tyr Thr Ser His Leu Ser Pro Gly Ser Ile Ile Gln Pro Gln Arg Arg
     50              55              60

Arg Pro Ser Leu Leu Ser Glu Phe Gln Pro Gly Ser Glu Arg Ser Gln
 65              70              75              80

Glu Leu His Leu Arg Pro Glu Ser Arg Thr Phe Leu Pro Glu Leu Gly
             85              90              95

Lys Pro Asp Ile Glu Phe Thr Glu Ser Lys Arg Pro Arg Leu Glu Leu
            100             105             110

Leu Pro Asp Thr Leu Leu Arg Pro Ser Pro Leu Leu Ala Thr Gly Gln
        115             120             125

Pro Ser Gly Ser Glu Asp Leu Thr Lys Asp Arg Ser Leu Ala Gly Lys
    130             135             140

Leu Glu Pro Val Ser Pro Pro Ser Pro Pro His Ala Asp Pro Glu Leu
145             150             155             160

Glu Leu Ala Pro Ser Arg Leu Ser Lys Glu Glu Leu Ile Gln Asn Met
            165             170             175

Asp Arg Val Asp Arg Glu Ile Thr Met Val Glu Gln Gln Ile Ser Lys
            180             185             190

Leu Lys Lys Lys Gln Gln Gln Leu Glu Glu Glu Ala Ala Lys Pro Pro
        195             200             205

Glu Pro Glu Lys Pro Val Ser Pro Pro Ile Glu Ser Lys His Arg
    210             215             220

Ser Leu Val Gln Ile Ile Tyr Asp Glu Asn Arg Lys Lys Ala Glu Ala
225             230             235               240

Ala His Arg Ile Leu Glu Gly Leu Gly Pro Gln Val Glu Leu Pro Leu
            245             250             255
```

22

```
Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His Glu Asn Ile Lys Ile
             260             265             270

Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr Phe Lys Arg Arg Asn
             275             280             285

His Ala Arg Lys Gln Trp Glu Gln Arg Phe Cys Gln Arg Tyr Asp Gln
             290             295             300

Leu Met Glu Ala Trp Glu Lys Lys Val Glu Arg Ile Glu Asn Asn Pro
305             310             315             320

Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu Tyr Tyr Glu Lys Gln
             325             330             335

Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln Glu Arg Met Gln Ser
             340             345             350

Arg Val Gly Gln Arg Gly Ser Gly Leu Ser Met Ser Ala Ala Arg Ser
             355             360             365

Glu His Glu Val Ser Glu Ile Ile Asp Gly Leu Ser Glu Gln Glu Asn
370             375             380

Leu Glu Lys Gln Met Arg Gln Leu Ala Val Ile Pro Pro Met Leu Tyr
385             390             395             400

Asp Ala Asp Gln Gln Arg Ile Lys Phe Ile Asn Met Asn Gly Leu Met
             405             410             415

Asp Asp Pro Met Lys Val Tyr Lys Asp Arg Gln Val Thr Asn Met Trp
             420             425             430

Ser Glu Gln Glu Arg Asp Thr Phe Arg Glu Lys Phe Met Gln His Pro
             435             440             445

Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu Arg Lys Thr Val Ala
     450             455             460

Glu Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr Lys
465             470             475             480

Ser Leu Val Arg Arg Ser Tyr Arg Arg Arg Gly Lys Ser Gln Gln Gln
             485             490             495

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Met Ala Arg Ser Ser
             500             505             510

Gln Glu Glu Lys Glu Glu Lys Glu Lys Glu Lys Glu Ala Asp Lys Glu
     515             520             525

Glu Glu Lys Gln Asp Ala Glu Asn Glu Lys Glu Glu Leu Ser Lys Glu
     530             535             540

Lys Thr Asp Asp Thr Ser Gly Glu Asp Asn His Glu Lys Glu Ala Val
545             550             555             560
```

23

```
Ala Ser Lys Gly Arg Lys Thr Ala Asn Ser Gln Gly Arg Arg Lys Gly
            565             570             575

Arg Ile Thr Arg Ser Met Ala Asn Glu Ala Asn His Glu Glu Thr Ala
            580             585             590

Thr Pro Gln Gln Ser Ser Glu Leu Ala Ser Met Glu Met Asn Glu Ser
        595             600             605

Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu
    610             615             620

Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys
625             630             635             640

Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln
            645             650             655

Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu Lys Met Glu Lys Glu
            660             665             670

Arg Asn Ala Arg Arg Lys Lys Lys Thr Pro Ala Ala Ala Ser Glu
        675             680             685

Glu Thr Ala Phe Pro Pro Ala Ala Glu Asp Glu Glu, Met Glu Ala Ser
    690             695             700

Gly Ala Ser Ala Asn Glu Glu Glu Leu Ala Glu Glu Ala Glu Ala Ser
705             710             715             720

Gln Ala Ser Gly Asn Glu Val Pro Arg Val Gly Glu Cys Ser Gly Pro
            725             730             735

Ala Ala Val Asn Asn Ser Ser Asp Thr Glu Ser Val Pro Ser Pro Arg
            740             745             750

Ser Glu Ala Met Lys Asp Thr Gly Pro Lys Pro Thr Gly Thr Glu Ala
    755             760             765

Leu Pro Ala Ala Thr Gln Pro Pro Val Pro Pro Pro Glu Glu Pro Ala
    770             775             780

Val Ala Pro Ala Glu Pro Ser Pro Val Pro Asp Ala Ser Gly Pro Pro
785             790             795             800

Ser Pro Glu Pro Ser His His Leu Pro His Pro Arg Leu Leu Trp Thr
            805             810             815

Arg Met Asn Lys Lys Pro Arg Leu Leu Gln Leu Pro Arg Gln Arg Met
        820             825             830

Pro Arg Ser Arg Ser Leu Arg Pro Arg Arg Ser Met Trp Glu Lys Pro
        835             840             845

Glu Glu Pro Glu Ala Ser Glu Glu Pro Pro Glu Ser Val Lys Ser Asp
    850             855             860
```

24

His Lys Glu Glu Thr Glu Glu Glu Pro Glu Asp Lys Ala Lys Gly Thr
865   870   875   880

Glu Ala Ile Glu Thr Val Ser Glu Ala Pro Leu Lys Val Glu Glu Ala
        885   890   895

Gly Ser Lys Ala Ala Val Thr Lys Gly Ser Ser Ser Gly Ala Thr Gln
        900   905   910

Asp Ser Asp Phe Ser Ala Thr Cys Ser Ala Asp Glu Val Asp Glu Pro
        915   920   925

Glu Gly Gly Asp Lys Gly Arg Leu Leu Ser Pro Arg Pro Ser Leu Leu
        930   935   940

Thr Pro Ala Gly Asp Pro Arg Ala Ser Thr Ser Pro Gln Lys Pro Leu
945   950   955   960

Asp Leu Lys Gln Leu Lys Gln Arg Ala Ala Ala Ile Pro Pro Ile Gln
        965   970   975

Val Thr Lys Val His Glu Pro Pro Arg Glu Asp Thr Val Pro Pro Lys
        980   985   990

Pro Val Pro Pro Val Pro Pro Thr Gln His Leu Gln Pro Glu Gly
        995   1000   1005

Asp Val Ser Gln Gln Ser Gly Gly Ser Pro Arg Gly Lys Ser Arg Ser
        1010   1015   1020

Pro Val Pro Pro Ala Glu Lys Glu Ala Glu Lys Pro Ala Phe Phe Pro
1025   1030   1035   1040

Ala Phe Pro Thr Glu Gly Pro Lys Leu Pro Thr Glu Pro Pro Arg Trp
        1045   1050   1055

Ser Ser Gly Leu Pro Phe Pro Ile Pro Pro Arg Glu Val Ile Lys Thr
        1060   1065   1070

Ser Pro His Ala Ala Asp Pro Ser Ala Phe Ser Tyr Thr Pro Pro Gly
        1075   1080   1085

His Pro Leu Pro Leu Gly Leu His Asp Ser Ala Arg Pro Val Leu Pro
        1090   1095   1100

Arg Pro Pro Ile Ser Asn Pro Pro Pro Leu Ile Ser Ser Ala Lys His
1105   1110   1115   1120

Pro Gly Val Leu Glu Arg Gln Leu Gly Ala Ile Ser Gln Gln Gly Met
        1125   1130   1135

Ser Val Gln Leu Arg Val Pro His Ser Glu His Ala Lys Ala Pro Met
        1140   1145   1150

Gly Pro Leu Thr Met Gly Leu Pro Leu Ala Val Asp Pro Lys Lys Leu
        1155   1160   1165

25

```
Gly Thr Ala Leu Gly Ser Ala Thr Ser Gly Ser Ile Thr Lys Gly Leu
    1170                1175                1180

Pro Ser Thr Arg Ala Ala Asp Gly Pro Ser Tyr Arg Gly Ser Ile Thr
1185                1190                1195                1200

His Gly Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr Ile Ser Arg Ile
                1205                1210                1215

Val Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Ala Arg Glu Asp Thr
            1220                1225                1230

Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys Gly His Val Leu
        1235                1240                1245

Ser Tyr Glu Gly Gly Met Ser Val Ser Gln Cys Ser Lys Glu Asp Gly
    1250                1255                1260

Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala Pro Lys Arg Thr
1265                1270                1275                1280

Tyr Asp Met Met Glu Gly Arg Val Gly Arg Thr Val Thr Ser Ala Ser
                1285                1290                1295

Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Glu Gln His Ser Pro His
        1300                1305                1310

Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr Gln Gly Ile Pro
        1315                1320                1325

Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg Arg Glu Ala Lys
    1330                1335                1340

Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro Pro Pro Pro Arg Asp
1345                1350                1355                1360

Leu Thr Glu Thr Tyr Lys Pro Arg Pro Leu Asp Pro Leu Gly Pro Leu
                1365                1370                1375

Lys Leu Lys Pro Thr His Glu Gly Val Val Ala Thr Val Lys Glu Ala
            1380                1385                1390

Gly Arg Ser Ile His Glu Ile Pro Arg Glu Glu Leu Arg Arg Thr Pro
        1395                1400                1405

Glu Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly Ser Ile Thr Gln
    1410                1415                1420

Gly Thr Pro Leu Lys Tyr Asp Ser Gly Ala Pro Ser Thr Gly Thr Lys
1425                1430                1435                1440

Lys His Asp Val Arg Ser Ile Ile Gly Ser Pro Gly Arg Pro Phe Pro
                1445                1450                1455

Ala Leu His Pro Leu Asp Ile Met Ala Asp Ala Arg Ala Leu Glu Arg
        1460                1465                1470
```

26

```
Ala Cys Tyr Glu Glu Ser Leu Lys Ser Arg Ser Gly Thr Ser Ser Gly
        1475                1480                1485

Ala Gly Gly Ser Ile Thr Arg Gly Ala Pro Val Val Val Pro Glu Leu
    1490                1495                1500

Gly Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp His Gly.Ala Pro
1505                1510                1515                1520

Phe Thr Ser His Leu Pro Arg Gly Ser Pro Val Thr Thr Arg Glu Pro
            1525                1530                1535

Thr Pro Arg Leu Gln Glu Gly Ser Leu Leu Ser Ser Lys Ala Ser Gln
        1540                1545                1550

Asp Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala Lys Ser Pro His
        1555                1560                1565

Ser Thr Val Pro Glu His His Pro His Pro Ile Ser Pro Tyr Glu His
    1570                1575                1580

Leu Leu Arg Gly Val Thr Gly Val Asp Leu Tyr Arg Gly His Ile Pro
1585                1590                1595                1600

Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile Pro Leu Glu Ala
            1605                1610                1615

Ala Ala Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala Pro Ser Pro Thr
        1620                1625                1630

Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly Tyr Pro Asp Thr
    1635                1640                1645

Ala Ala Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile Thr Ser
    1650                1655                1660

Gln Gln Met His His Asn Ala Ala Ser Ala Met Ala Gln Arg Ala Asp
1665                1670                1675                1680

Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu Ala Leu Asn Tyr
            1685                1690                1695

Ala Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln Val Pro His Leu
        1700                1705                1710

Pro Val Leu Val Pro Pro Thr Pro Gly Thr Pro Ala Thr Ala Ile Asp
        1715                1720                1725

Arg Leu Ala Tyr Leu Pro Thr Ala Pro Pro Pro Phe Ser Ser Arg His
    1730                1735                1740

Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His Leu Ala Lys Pro
1745                1750                1755                1760

Thr Ala Thr Ser Ser Ser Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg
            1765                1770                1775
```

27

Asp Lys Ser Ile Leu Thr Ser Thr Thr Thr Val Glu His Ala Pro Ile
     1780   1785   1790

Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ala Gly Gly Ser Ser Arg
     1795   1800   1805

Pro Ala Ser His Thr His Gln His Ser Pro Ile Ser Pro Arg Thr Gln
     1810   1815   1820

Asp Ala Leu Gln Gln Arg Pro Ser Val Leu His Asn Thr Ser Met Lys
1825   1830   1835   1840

Gly Val Val Thr Ser Val Glu Pro Gly Thr Pro Thr Val Leu Arg Trp
                1845   1850   1855

Ala Arg Ser Thr Ser Thr Ser Ser Pro Val Arg Pro Ala Ala Thr Phe
                1860   1865   1870

Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr Leu Glu Gly Val Tyr
                1875   1880   1885

Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys Glu Thr Ser Arg Val
     1890   1895   1900

Ala Arg Pro Glu Arg Ala Arg Val Asp Ala Gly His Ala Phe Leu Thr
1905   1910   1915   1920

Lys Pro Pro Gly Arg Glu Pro Ala Ser Ser Pro Ser Lys Ser Ser Glu
                1925   1930   1935

Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His Thr Ala Ile Ala Arg
                1940   1945   1950

Thr Pro Ala Lys Asn Leu Ala Pro His His Ala Ser Pro Asp Pro Pro
     1955   1960   1965

Ala Pro Thr Ser Ala Ser Asp Leu His Arg Glu Lys Thr Gln Ser Lys
     1970   1975   1980

Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu Gly Tyr His Ser
1985   1990   1995   2000

Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro Ile Ser Pro Val Ser
                2005   2010   2015

Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser Lys Pro Leu Glu Glu
     2020   2025   2030

Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg His Lys Gln Pro Gly
     2035   2040   2045

Pro Met Lys Leu Ser Ala Glu Ala Ala His Leu Pro His Leu Arg Pro
     2050   2055   2060

Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu Gln Thr Ala Pro
2065   2070   2075   2080

28

```
Gly Ile Lys Gly His Gln Arg Val Val Thr Leu Ala Gln His Ile Ser
              2085                2090                2095

Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro Gln Gln Leu Ser
              2100                2105                2110

Gly Pro Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly Ala Ser Cys Pro
          2115                2120                2125

Val Leu Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr Leu Pro Pro Pro
      2130                2135                2140

Asp His Gly Thr Pro Ala Arg Gly Ser Pro His Ser Glu Gly Gly Lys
2145                2150                2155                2160

Arg Ser Pro Glu Pro Ser Lys Thr Ser Val Leu Gly Ser Ser Glu Asp
              2165                2170                2175

Ala Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr Glu Pro Gly His
          2180                2185                2190

Ala Arg Ser Thr Ala Tyr Pro Leu Leu Tyr Arg Asp Gly Glu Gln Gly
          2195                2200                2205

Glu Pro Arg Met Gly Leu Glu Ser Pro Gly Asn Thr Ser Gln Pro Pro
      2210                2215                2220

Thr Phe Phe Ser Lys Leu Thr Glu Ser Asn Ser Ala Met Val Lys Ser
2225                2230                2235                2240

Lys Lys Gln Glu Ile Asn Lys Lys Leu Asn Thr His Asn Arg Asn Glu
              2245                2250                2255

Pro Glu Tyr Asn Ile Gly Gln Pro Gly Thr Glu Ile Phe Asn Met Pro
          2260                2265                2270

Ala Ile Thr Gly Ala Gly Leu Met Thr Cys Arg Ser Gln Ala Val Gln
          2275                2280                2285

Glu His Ala Ser Thr Asn Met Gly Leu Glu Ala Ile Ile Arg Lys Ala
      2290                2295                2300

Leu Met Gly Lys Tyr Asp Gln Trp Glu Glu Pro Pro Pro Leu Gly Ala
2305                2310                2315                2320

Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu Pro Ala Ala Ala
              2325                2330                2335

Met Pro Ile Thr Thr Ala Asp Gly Arg Ser Asp His Ala Leu Thr Ser
          2340                2345                2350

Pro Gly Gly Gly Gly Lys Ala Lys Val Ser Gly Arg Pro Ser Ser Arg
          2355                2360                2365

Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly Asp Arg Pro Pro
    2370                2375                2380
```

29

```
Ser Val Ser Ser Val His Ser Glu Gly Asp Cys Asn Arg Arg Thr Pro
2385                    2390            2395                    2400
Leu Thr Asn Arg Val Trp Glu Asp Arg Pro Ser Ser Ala Gly Ser Thr
            2405                2410                    2415
Pro Phe Pro Tyr Asn Pro Leu Ile Met Arg Leu Gln Ala Gly Val Met
        2420                2425                2430
Ala Ser Pro Pro Pro Pro Gly Leu Ala Ala Gly Ser Gly Pro Leu Ala
    2435                2440                2445
Gly Pro His His Ala Trp Asp Glu Glu Pro Lys Pro Leu Leu Cys Ser
2450                2455                2460
Gln Tyr Glu Thr Leu Ser Asp Ser Glu
2465                2470
```

```
<210> 8
<211> 7465
<212> DNA
<213> Mus sp.

<220>
<221> modified_base
<222> (7250)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (7257)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (7379)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (7420)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (7436)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (7461)
<223> a, c, t, g, other or unknown

<400> 8
ggcacgaggg cagcgcaggc cgggccgcat ccccgtcccc gcgccagccg cccgcgcccg 60
ccatgcgcgc cccgcagcgg cccgcgcgtc cgggccccgc gtcgtagcgc ggcgggcgga 120
gaccgcaggc tctcagcccg gacccgccgc atcctcgagc ccgatcggcg ccgtagcccg 180
```

30

```
gcgccagcgc ccggtgccgc cgccggcgag tgctcctgag tctttgagga acacagcctc 240
ctggtggaag ttcgtggcac ctgtgacgag gtcacctgcc agcagatgac cgagaccagc 300
ccttagtcct aggtgtggtc aagagtgtct tgggctccaa agcctacctg gaccctacca 360
ccatgtcagg atccacacag cctgtggcac agacatggcg ggctgctgag ccccgctacc 420
caccccatgg catctcctac ccggtgcaga tagcccggtc ccacacgcct ctgtacaacc 480
agccgtctga cacacgccag taccatgaaa acatcaaaat aaaccaggcg atgcggaaga 540
agctgatctt gtactttaag cggaggaacc acgcgcgcaa gcagtgggaa cagcgcttct 600
gccagcgcta tgaccagctc atggaggcgt gggagaagaa ggtagagcgc atagagaaca 660
atccgcgaag gagggccaag gagagcaagg tgagggagta ctacgagaaa cagttcccgg 720
agatccgcaa gcagcgggag ctgcaggagc gcatgcagag cagggtgggc cagcgtggca 780
gtgggctctc catgtcggct gcccgcagtg agcatgaggt ttctgagatc attgatggct 840
tgtctgagca ggagaacctg gagaagcaga tgcgccagct ggccgtgatc ccgcccatgt 900
tgtacgacgc ggaccagcag aggatcaagt tcatcaacat gaatggactc atggatgacc 960
ccatgaaggt ctacaaggac cgtcaggtta ccaacatgtg gagcgagcag gagagggaca 1020
ccttccgtga gaagtttatg cagcacccta agaactttgg cctgattgcc tcattcctgg 1080
agagaaagac ggtcgctgag tgtgtcctct attactacct gaccaagaag aatgaaaatt 1140
acaagagctt ggtgaggcgg agctatcggc gccgtggcaa gagccagcag cagcagcagc 1200
agcaacaaca gcagcagcag cagcagatgg cacggagcag ccaggaggag aaggaggaga 1260
aggagaagga gaaggaggcc gacaaggagg aagagaagca ggatgcggag aacgagaagg 1320
aagaactcag caaggagaag acagacgaca cttctggcga ggacaacgat gagaaagagg 1380
ccgtggcctc caaaggccgc aaaactgcca acagccaagg ccgccgcaaa ggccgtatca 1440
cgcgctccat ggccaacgag gccaaccatg aggagacagc caccccacag caaagttcag 1500
agctggcttc catggagatg aacgagagtt ctcgctggac tgaggaagag atggagacag 1560
caaagaaagg cctcctggaa catgggagga actggtcagc cattgcccgc atggtgggct 1620
ccaagaccgt gtcccagtgt aagaacttct acttcaacta caagaagagg cagaacctgg 1680
acgaaatcct tcagcagcac aagctaaaga tggagaagga gaggaacgct cggaggaaga 1740
agaagaagac cccagctgcg gcgagcgagg agacagcctt cccacctgcc gctgaggacg 1800
aagagatgga agcatcaggc gcaagtgcca atgaggaaga gctggcggag gaggcagaag 1860
cctcacaggc ctctgggaat gaggttccca gagttgggga gtgcagtggc ccagctgctg 1920
tcaacaacag ctctgatact gagagtgtcc catccccgcg ttcagaagcc acgaaggaca 1980
ctgggcctaa acccactggc actgaagcat tgcccgctgc cacccagcca cctgttcctc 2040
ctccagaaga accggcagta gcccctgctg agccctcccc agtccctgat gccagtggcc 2100
caccatcccc agagccttcc catcacctgc cgcaccccg gctactgtgg acaaggatga 2160
acaagaagcc ccggctgctc cagctcccca gacagaggat gccaaggagc agaagtctga 2220
ggccgaggag atcgatgtgg gaaaagccag aggagcccga ggcttctgag aagcccccga 2280
agagtgtaaa gagtgaccac aagaaggaga ccgaggaaga gcctgaagac aaagccaagg 2340
gcacagaggc cattgaaact gtgtctgagg caccacttaa ggtggagaag gctggtagca 2400
aggcagctgt gaccaagggt tccagctcag gtgccaccca ggacagtgac tccagtgcca 2460
cctgcagtgc cgatgaggtg gacgaacccg aaggaggtga caagggcagg ctgctgtcac 2520
caaggcccag cctcctcacc ccggctggag atccccgggc cagtacctcg ccccagaagc 2580
cgctggacct gaagcagctg aagcagcgag cagccgccat cccccctatc gtcaccaagg 2640
tccatgagcc cccccgggag gacacagtac ccccaaagcc agttccccct gtgcctccac 2700
ccacgcagca cctacagcca gagggtgacg tgtctcagca gtcgggagga agtccacgtg 2760
gcaagtcccg cagcccagtg cctcctgccg agaaagaggc agagaaaccc gcattctttc 2820
cggcttccc aactgagggc ccaaagctac cgactgagcc cccacgctgg tcatcgggcc 2880
tgcccttccc catccctcca cgggaggtga tcaagacttc cccacacgcc gctgacccct 2940
ctgccttctc ctacacaccc cccggtcacc cgctgcctct gggcctccac gatagtgccc 3000
ggcccgtcct gccacgtccc cccatctcta accccccacc cctcatctcc tctgccaagc 3060
atcccggcgt acttgagagg cagctgggtg ccatctccca gcaggggatg tcagtccagc 3120
ttcgtgtgcc tcactcagag catgccaagg cccccatggg ccctctcacc atggggctgc 3180
cccttgccgt ggaccctaag aagctgggga cagcactggg ctccgccacc agtggaagca 3240
tcaccaaggg cctccccagt acccgggctg cagacggccc cagctacaga ggctctatca 3300
cccacggcac gcccgcagac gtcctctaca agggtaccat cagcaggatc gtcggtgagg 3360
acagcccaag tcgccttgac cgggcacgag aggacaccct gcccaagggc catgtcatct 3420
atgagggcaa gaaaggccac gtcctatcct atgaaggtgg tatgtccgtg tcacagtgct 3480
ctaaggagga tggaaggagc agctcgggcc cacccatga gactgccgcc cctaaacgca 3540
cctatgacat gatggagggc cgtgtaggca ggactgtcac ctcagccagc atagagggac 3600
tcatgggccg cgccatccct gagcagcaca gcccccacct caaggagcag catcacatcc 3660
```

31

```
gaggctccat cacgcaaggc atcccgaggt cctatgtgga ggcgcaggag gactacttac 3720
ggcgggaggc caagctcttg aagcgagaag ggacaccacc accccacca ccacctcggg 3780
acctgactga gacctacaag ccccggcccc tggaccctct gggtcccctg aagctgaagc 3840
cgactcacga gggtgtggta gcaactgtga aggaggcggg ccgctctatc catgagatcc 3900
cgagagagga gctgcgccgc acacctgagc taccctggc accacggcct ctgaaggagg 3960
gttccatcac ccagggcacc ccactcaagt acgactctgg ggcaccctcc actggcacca 4020
agaaacacga cgtgcgctcc atcatcggca gccccggccg gccttttccct gccctgcacc 4080
cgctggacat aatggctgac gcccgggcac tggagcgtgc ctgctatgaa gagagtctga 4140
agagccggtc agggaccagc agtggtgcag ggggctccat cacacgtggg gctccagtcg 4200
tcgtgcctga actgggcaag ccacggcaaa gcccactgac ttacgaagac cacggggcac 4260
ccttcaccag tcacctgcca cgtggctccc ctgtgaccac gaggagccc acgccacgcc 4320
ttcaggaagg cagcctccta tccagcaagg cgtcccagga ccggaagctg acatctacac 4380
cccgggagat cgccaagtcc ccacacagca ctgtgcccga gcaccaccct caccccatct 4440
cccctatga gcacttgctc cggggcgtga ctggtgtgga cctgtaccgt ggtcacatcc 4500
cattggcctt tgaccccacc tccatacccc gagggatccc tctggaagca gcagccgcag 4560
cctactacct gccccggcac ttggcccca gcccacccta cccacacctg tacccacctt 4620
acctcatccg cggctaccct gacacggcgg ccctggagaa ccgccagacc atcatcaatg 4680
actacatcac ctcgcagcag atgcaccaca acgctgcctc cgccatggcc cagcgtgctg 4740
acatgctgag gggtctgtca ccgcgagagt cctcgctggc cctcaattat gccgctggcc 4800
caagaggcat tatcgacctg tcccaagtgc cacacctgcc cgtgctggtg ccaccaacgc 4860
caggcacccc tgccaccgcc atcgaccgcc ttgcctacct ccccactgcg cccccaccct 4920
tcagcagccg ccacagtagc tcaccgctgt ccccaggagg ccccactcac ctagctaaac 4980
caactgccac atcttcatcg gagcgggaac gggaacgtga gcgggaacga gacaagtcca 5040
tcctcacgtc taccactaca gtggagcatg cacccatctg gagacctggt acggagcaga 5100
gcagcggggc tgggggcagc agccgccccg cctcccacac ccaccagcac tcgcccatct 5160
ccccccggac ccaggacgcc ttgcagcaga ggcccagtgt gctgcacaac acgagcatga 5220
agggcgtggt cacctccgtg gaacccggca cgcccacggt cctgaggtgg gccaggtcca 5280
cctccacctc ttcgcctgtc cgcccagctg ccacattccc acctgccacc cactgccac 5340
ttggtggcac ccttgaaggg gtctacccta ccctcatgga gcccgtcctg ttacccaagg 5400
agacctctcg ggtcgcccgg cccgagcggg cccgggtgga cgctggccat gcctttctta 5460
ccaaaccccc gggccgggag cccgcctcct cacccagcaa gagctccgag ccccgatccc 5520
tagcaccccc cagctccagc cacacagcca tcgcccgcac cccagcaaag aaccttgcac 5580
cccaccatgc cagtccggac ccgccggcgc ccacctcggc ctcagatctg caccgagaaa 5640
agactcaaag taaacccttt tccatccagg aattggaact ccgttctctg ggttaccaca 5700
gtggagctgg ctacagcccc gatggggtgg agcccatcag cccggtgagc tcccccagcc 5760
tgacccacga caaggggctc tccaaacctc tggaagagct agagaagagc cacttggaag 5820
gggagctgcg gcacaagcag ccaggcccca tgaagctcag cgcggaggct gcccatctcc 5880
cacatctgcg gccactgccc gagagccagc cctcatccag cccactcctc cagactgccc 5940
caggcatcaa aggtcaccag agggtggtca ccctggctca gcacatcagc gaggtcatta 6000
cgcaggacta cacgcgccac cacccgcagc agctcagtgg cccccttccc gcccctctct 6060
actcctttcc cggagccagc tgccctgtcc tggatcttcg ccgcccaccc agtgacctct 6120
acctcccacc ccccgaccat ggcacccag cccggggatc ccccacagt gaagggggca 6180
aaaggtcccc agaacccagc aaaacatcgg tcctgggcag cagcgaggat gccattgagc 6240
ctgtgtcccc accagagggc atgactgagc caggacatgc tcggagcact gcgtacccac 6300
tgctgtatcg agacggggaa cagggcgagc ccaggatggg tctagagtct ccaggcaaca 6360
ccagccagcc gccaaccttc ttcagtaagc tgactgagag caactccgcc atggtgaagt 6420
cgaagaagca ggagatcaac aagaaactca cacccacaa ccggaacgag ccagaataca 6480
atattggcca gcctgggacg gaaatcttca acatgcccgc catcactgga gcaggcctta 6540
tgacctgtag aagccaggcg gtgcaagaac acgccagcac caacatgggg ctagaggcca 6600
ttattagaaa ggcactcatg ggtaaatatg atcagtggga agagcccccg ccgctcggcg 6660
ccaatgcttt taaccctctg aatgccagcg ccagtctgcc cgctgctgct atgcccataa 6720
ccactgctga cggacggagt gaccacgcac tcacctcgcc aggtggaggt gggaaagcca 6780
aggtctctgg cagacctagc agccgaaaag ccaagtcgcc agcaccaggc ctagcgtccg 6840
gagaccgacc cccttctgtc tcctcagtac actcagaggg ggactgcaat cgccgaacac 6900
cactcaccaa ccgtgtgtgg gaggaccggc cctcatctgc agggtccacg ccattcccct 6960
acaacccttt gattatgagg ctacaggcag gtgtcatgc ctcccggccc ccacctggcc 7020
ttgcggcagg cagcgggccc ctagctggtc cccaccacgc ctgggatgag gagcccaagc 7080
cactgctgtg ttcacagtat gagacactct cggacagcga gtgaccacgg attggggggg 7140
```

32

```
agcggtgcca ggtcccgcac aaggcagaag cagcccagca tggagcagac agctgctgac 7200
tcccgagact gaggaaggag cccctgagtc tgcctgcgcg tccatccgtn cgtcgtncac 7260
tcatctgtcc atccagagct ggcattctgc ctgtctaaag ccttaactaa gacttccacc 7320
ccgggctggc cctgcgcagt gaccttacac tcaggggatt gtttaccttg gtgctcgana 7380
aggggagtg gacaggaagg ggaggacaa gccgggccan gagggggggg gacaancaat 7440
tcgtgtgtca agtcgcactc ntgct                                      7465
```

<210> 9
<211> 2253
<212> PRT
<213> Mus sp.

<400> 9

```
Met Ser Gly Ser Thr Gln Pro Val Ala Gln Thr Trp Arg Ala Ala Glu
1               5                   10                  15

Pro Arg Tyr Pro Pro His Gly Ile Ser Tyr Pro Val Gln Ile Ala Arg
                20                  25                  30

Ser His Thr Pro Leu Tyr Asn Gln Pro Ser Asp Thr Arg Gln Tyr His
            35                  40                  45

Glu Asn Ile Lys Ile Asn Gln Ala Met Arg Lys Lys Leu Ile Leu Tyr
        50                  55                  60

Phe Lys Arg Arg Asn His Ala Arg Lys Gln Trp Glu Gln Arg Phe Cys
65                  70                  75                  80

Gln Arg Tyr Asp Gln Leu Met Glu Ala Trp Glu Lys Lys Val Glu Arg
                85                  90                  95

Ile Glu Asn Asn Pro Arg Arg Arg Ala Lys Glu Ser Lys Val Arg Glu
            100                 105                 110

Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln Arg Glu Leu Gln
        115                 120                 125

Glu Arg Met Gln Ser Arg Val Gly Gln Arg Gly Ser Gly Leu Ser Met
    130                 135                 140

Ser Ala Ala Arg Ser Glu His Glu Val Ser Glu Ile Ile Asp Gly Leu
145                 150                 155                 160

Ser Glu Gln Glu Asn Leu Glu Lys Gln Met Arg Gln Leu Ala Val Ile
                165                 170                 175

Pro Pro Met Leu Tyr Asp Ala Asp Gln Gln Arg Ile Lys Phe Ile Asn
            180                 185                 190

Met Asn Gly Leu Met Asp Asp Pro Met Lys Val Tyr Lys Asp Arg Gln
        195                 200                 205

Val Thr Asn Met Trp Ser Glu Gln Glu Arg Asp Thr Phe Arg Glu Lys
    210                 215                 220

Phe Met Gln His Pro Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu
225                 230                 235                 240
```

33

```
Arg Lys Thr Val Ala Glu Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys
            245             250             255

Asn Glu Asn Tyr Lys Ser Leu Val Arg Arg Ser Tyr Arg Arg Arg Gly
            260             265             270

Lys Ser Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
        275             280             285

Met Ala Arg Ser Ser Gln Glu Glu Lys Glu Glu Lys Glu Lys Glu Lys
    290             295             300

Glu Ala Asp Lys Glu Glu Glu Lys Gln Asp Ala Glu Asn Glu Lys Glu
305             310             315             320

Glu Leu Ser Lys Glu Lys Thr Asp Asp Thr Ser Gly Glu Asp Asn Asp
            325             330             335

Glu Lys Glu Ala Val Ala Ser Lys Gly Arg Lys Thr Ala Asn Ser Gln
            340             345             350

Gly Arg Arg Lys Gly Arg Ile Thr Arg Ser Met Ala Asn Glu Ala Asn
            355             360             365

His Glu Glu Thr Ala Thr Pro Gln Gln Ser Ser Glu Leu Ala Ser Met
    370             375             380

Glu Met Asn Glu Ser Ser Arg Trp Thr Glu Glu Glu Met Glu Thr Ala
385             390             395             400

Lys Lys Gly Leu Leu Glu His Gly Arg Asn Trp Ser Ala Ile Ala Arg
            405             410             415

Met Val Gly Ser Lys Thr Val Ser Gln Cys Lys Asn Phe Tyr Phe Asn
            420             425             430

Tyr Lys Lys Arg Gln Asn Leu Asp Glu Ile Leu Gln Gln His Lys Leu
        435             440             445

Lys Met Glu Lys Glu Arg Asn Ala Arg Arg Lys Lys Lys Lys Thr Pro
    450             455             460

Ala Ala Ala Ser Glu Glu Thr Ala Phe Pro Pro Ala Ala Glu Asp Glu
465             470             475             480

Glu Met Glu Ala Ser Gly Ala Ser Ala Asn Glu Glu Glu Leu Ala Glu
            485             490             495

Glu Ala Glu Ala Ser Gln Ala Ser Gly Asn Glu Val Pro Arg Val Gly
        500             505             510

Glu Cys Ser Gly Pro Ala Ala Val Asn Asn Ser Ser Asp Thr Glu Ser
        515             520             525

Val Pro Ser Pro Arg Ser Glu Ala Thr Lys Asp Thr Gly Pro Lys Pro
    530             535             540
```

34

Thr Gly Thr Glu Ala Leu Pro Ala Ala Thr Gln Pro Pro Val Pro Pro
545   550   555   560

Pro Glu Glu Pro Ala Val Ala Pro Ala Glu Pro Ser Pro Val Pro Asp
            565   570   575

Ala Ser Gly Pro Pro Ser Pro Glu Pro Ser His His Leu Pro His Pro
            580   585   590

Arg Leu Leu Trp Thr Arg Met Asn Lys Lys Pro Arg Leu Leu Gln Leu
        595   600   605

Pro Arg Gln Arg Met Pro Arg Ser Arg Ser Leu Arg Pro Arg Arg Ser
    610   615   620

Met Trp Glu Lys Pro Glu Glu Pro Glu Ala Ser Glu Lys Pro Pro Lys
625   630   635   640

Ser Val Lys Ser Asp His Lys Lys Glu Thr Glu Glu Glu Pro Glu Asp
            645   650   655

Lys Ala Lys Gly Thr Glu Ala Ile Glu Thr Val Ser Glu Ala Pro Leu
            660   665   670

Lys Val Glu Lys Ala Gly Ser Lys Ala Ala Val Thr Lys Gly Ser Ser
    675   680   685

Ser Gly Ala Thr Gln Asp Ser Asp Ser Ser Ala Thr Cys Ser Ala Asp
    690   695   700

Glu Val Asp Glu Pro Glu Gly Gly Asp Lys Gly Arg Leu Leu Ser Pro
705   710   715   720

Arg Pro Ser Leu Leu Thr Pro Ala Gly Asp Pro Arg Ala Ser Thr Ser
            725   730   735

Pro Gln Lys Pro Leu Asp Leu Lys Gln Leu Lys Gln Arg Ala Ala Ala
            740   745   750

Ile Pro Pro Ile Val Thr Lys Val His Glu Pro Pro Arg Glu Asp Thr
    755   760   765

Val Pro Pro Lys Pro Val Pro Pro Val Pro Pro Pro Thr Gln His Leu
    770   775   780

Gln Pro Glu Gly Asp Val Ser Gln Gln Ser Gly Gly Ser Pro Arg Gly
785   790   795   800

Lys Ser Arg Ser Pro Val Pro Pro Ala Glu Lys Glu Ala Glu Lys Pro
            805   810   815

Ala Phe Phe Pro Ala Phe Pro Thr Glu Gly Pro Lys Leu Pro Thr Glu
            820   825   830

Pro Pro Arg Trp Ser Ser Gly Leu Pro Phe Pro Ile Pro Pro Arg Glu
        835   840   845

35

Val Ile Lys Thr Ser Pro His Ala Ala Asp Pro Ser Ala Phe Ser Tyr
    850   855   860

Thr Pro Pro Gly His Pro Leu Pro Leu Gly Leu His Asp Ser Ala Arg
865   870   875   880

Pro Val Leu Pro Arg Pro Pro Ile Ser Asn Pro Pro Pro Leu Ile Ser
            885   890   895

Ser Ala Lys His Pro Gly Val Leu Glu Arg Gln Leu Gly Ala Ile Ser
            900   905   910

Gln Gln Gly Met Ser Val Gln Leu Arg Val Pro His Ser Glu His Ala
        915   920   925

Lys Ala Pro Met Gly Pro Leu Thr Met Gly Leu Pro Leu Ala Val Asp
    930   935   940

Pro Lys Lys Leu Gly Thr Ala Leu Gly Ser Ala Thr Ser Gly Ser Ile
945   950   955   960

Thr Lys Gly Leu Pro Ser Thr Arg Ala Ala Asp Gly Pro Ser Tyr Arg
            965   970   975

Gly Ser Ile Thr His Gly Thr Pro Ala Asp Val Leu Tyr Lys Gly Thr
        980   985   990

Ile Ser Arg Ile Val Gly Glu Asp Ser Pro Ser Arg Leu Asp Arg Ala
        995   1000   1005

Arg Glu Asp Thr Leu Pro Lys Gly His Val Ile Tyr Glu Gly Lys Lys
    1010   1015   1020

Gly His Val Leu Ser Tyr Glu Gly Gly Met Ser Val Ser Gln Cys Ser
1025   1030   1035   1040

Lys Glu Asp Gly Arg Ser Ser Ser Gly Pro Pro His Glu Thr Ala Ala
            1045   1050   1055

Pro Lys Arg Thr Tyr Asp Met Met Glu Gly Arg Val Gly Arg Thr Val
        1060   1065   1070

Thr Ser Ala Ser Ile Glu Gly Leu Met Gly Arg Ala Ile Pro Glu Gln
        1075   1080   1085

His Ser Pro His Leu Lys Glu Gln His His Ile Arg Gly Ser Ile Thr
    1090   1095   1100

Gln Gly Ile Pro Arg Ser Tyr Val Glu Ala Gln Glu Asp Tyr Leu Arg
1105   1110   1115   1120

Arg Glu Ala Lys Leu Leu Lys Arg Glu Gly Thr Pro Pro Pro Pro Pro
            1125   1130   1135

Pro Pro Arg Asp Leu Thr Glu Thr Tyr Lys Pro Arg Pro Leu Asp Pro
        1140   1145   1150

36

```
Leu Gly Pro Leu Lys Leu Lys Pro Thr His Glu Gly Val Val Ala Thr
        1155            1160            1165

Val Lys Glu Ala Gly Arg Ser Ile His Glu Ile Pro Arg Glu Glu Leu
    1170            1175            1180

Arg Arg Thr Pro Glu Leu Pro Leu Ala Pro Arg Pro Leu Lys Glu Gly
1185            1190            1195            1200

Ser Ile Thr Gln Gly Thr Pro Leu Lys Tyr Asp Ser Gly Ala Pro Ser
            1205            1210            1215

Thr Gly Thr Lys Lys His Asp Val Arg Ser Ile Ile Gly Ser Pro Gly
            1220            1225            1230

Arg Pro Phe Pro Ala Leu His Pro Leu Asp Ile Met Ala Asp Ala Arg
        1235            1240            1245

Ala Leu Glu Arg Ala Cys Tyr Glu Glu Ser Leu Lys Ser Arg Ser Gly
    1250            1255            1260

Thr Ser Ser Gly Ala Gly Gly Ser Ile Thr Arg Gly Ala Pro Val Val
1265            1270            1275            1280

Val Pro Glu Leu Gly Lys Pro Arg Gln Ser Pro Leu Thr Tyr Glu Asp
            1285            1290            1295

His Gly Ala Pro Phe Thr Ser His Leu Pro Arg Gly Ser Pro Val Thr
        1300            1305            1310

Thr Arg Glu Pro Thr Pro Arg Leu Gln Glu Gly Ser Leu Leu Ser Ser
        1315            1320            1325

Lys Ala Ser Gln Asp Arg Lys Leu Thr Ser Thr Pro Arg Glu Ile Ala
    1330            1335            1340

Lys Ser Pro His Ser Thr Val Pro Glu His His Pro His Pro Ile Ser
1345            1350            1355            1360

Pro Tyr Glu His Leu Leu Arg Gly Val Thr Gly Val Asp Leu Tyr Arg
            1365            1370            1375

Gly His Ile Pro Leu Ala Phe Asp Pro Thr Ser Ile Pro Arg Gly Ile
        1380            1385            1390

Pro Leu Glu Ala Ala Ala Ala Tyr Tyr Leu Pro Arg His Leu Ala
    1395            1400            1405

Pro Ser Pro Thr Tyr Pro His Leu Tyr Pro Pro Tyr Leu Ile Arg Gly
    1410            1415            1420

Tyr Pro Asp Thr Ala Ala Leu Glu Asn Arg Gln Thr Ile Ile Asn Asp
    1425            1430            1435            1440

Tyr Ile Thr Ser Gln Gln Met His His Asn Ala Ala Ser Ala Met Ala
            1445            1450            1455
```

37

Gln Arg Ala Asp Met Leu Arg Gly Leu Ser Pro Arg Glu Ser Ser Leu
        1460   1465   1470

Ala Leu Asn Tyr Ala Ala Gly Pro Arg Gly Ile Ile Asp Leu Ser Gln
        1475   1480   1485

Val Pro His Leu Pro Val Leu Val Pro Pro Thr Pro Gly Thr Pro Ala
        1490   1495   1500

Thr Ala Ile Asp Arg Leu Ala Tyr Leu Pro Thr Ala Pro Pro Pro Phe
1505   1510   1515   1520

Ser Ser Arg His Ser Ser Ser Pro Leu Ser Pro Gly Gly Pro Thr His
            1525   1530   1535

Leu Ala Lys Pro Thr Ala Thr Ser Ser Ser Glu Arg Glu Arg Glu Arg
        1540   1545   1550

Glu Arg Glu Arg Asp Lys Ser Ile Leu Thr Ser Thr Thr Thr Val Glu
        1555   1560   1565

His Ala Pro Ile Trp Arg Pro Gly Thr Glu Gln Ser Ser Gly Ala Gly
        1570   1575   1580

Gly Ser Ser Arg Pro Ala Ser His Thr His Gln His Ser Pro Ile Ser
1585   1590   1595   1600

Pro Arg Thr Gln Asp Ala Leu Gln Gln Arg Pro Ser Val Leu His Asn
            1605   1610   1615

Thr Ser Met Lys Gly Val Val Thr Ser Val Glu Pro Gly Thr Pro Thr
        1620   1625   1630

Val Leu Arg Trp Ala Arg Ser Thr Ser Thr Ser Ser Pro Val Arg Pro
        1635   1640   1645

Ala Ala Thr Phe Pro Pro Ala Thr His Cys Pro Leu Gly Gly Thr Leu
        1650   1655   1660

Glu Gly Val Tyr Pro Thr Leu Met Glu Pro Val Leu Leu Pro Lys Glu
1665   1670   1675   1680

Thr Ser Arg Val Ala Arg Pro Glu Arg Ala Arg Val Asp Ala Gly His
            1685   1690   1695

Ala Phe Leu Thr Lys Pro Pro Gly Arg Glu Pro Ala Ser Ser Pro Ser
        1700   1705   1710

Lys Ser Ser Glu Pro Arg Ser Leu Ala Pro Pro Ser Ser Ser His Thr
        1715   1720   1725

Ala Ile Ala Arg Thr Pro Ala Lys Asn Leu Ala Pro His His Ala Ser
    1730   1735   1740

Pro Asp Pro Pro Ala Pro Thr Ser Ala Ser Asp Leu His Arg Glu Lys
1745   1750   1755   1760

38

Thr Gln Ser Lys Pro Phe Ser Ile Gln Glu Leu Glu Leu Arg Ser Leu
            1765   1770   1775

Gly Tyr His Ser Gly Ala Gly Tyr Ser Pro Asp Gly Val Glu Pro Ile
            1780   1785   1790

Ser Pro Val Ser Ser Pro Ser Leu Thr His Asp Lys Gly Leu Ser Lys
         1795   1800   1805

Pro Leu Glu Glu Leu Glu Lys Ser His Leu Glu Gly Glu Leu Arg His
    1810   1815   1820

Lys Gln Pro Gly Pro Met Lys Leu Ser Ala Glu Ala Ala His Leu Pro
1825   1830   1835   1840

His Leu Arg Pro Leu Pro Glu Ser Gln Pro Ser Ser Ser Pro Leu Leu
            1845   1850   1855

Gln Thr Ala Pro Gly Ile Lys Gly His Gln Arg Val Val Thr Leu Ala
            1860   1865   1870

Gln His Ile Ser Glu Val Ile Thr Gln Asp Tyr Thr Arg His His Pro
         1875   1880   1885

Gln Gln Leu Ser Gly Pro Leu Pro Ala Pro Leu Tyr Ser Phe Pro Gly
    1890   1895   1900

Ala Ser Cys Pro Val Leu Asp Leu Arg Arg Pro Pro Ser Asp Leu Tyr
1905   1910   1915   1920

Leu Pro Pro Pro Asp His Gly Thr Pro Ala Arg Gly Ser Pro His Ser
            1925   1930   1935

Glu Gly Gly Lys Arg Ser Pro Glu Pro Ser Lys Thr Ser Val Leu Gly
            1940   1945   1950

Ser Ser Glu Asp Ala Ile Glu Pro Val Ser Pro Pro Glu Gly Met Thr
         1955   1960   1965

Glu Pro Gly His Ala Arg Ser Thr Ala Tyr Pro Leu Leu Tyr Arg Asp
    1970   1975   1980

Gly Glu Gln Gly Glu Pro Arg Met Gly Leu Glu Ser Pro Gly Asn Thr
1985   1990   1995   2000

Ser Gln Pro Pro Thr Phe Phe Ser Lys Leu Thr Glu Ser Asn Ser Ala
         2005   2010   2015

Met Val Lys Ser Lys Lys Gln Glu Ile Asn Lys Lys Leu Asn Thr His
         2020   2025   2030

Asn Arg Asn Glu Pro Glu Tyr Asn Ile Gly Gln Pro Gly Thr Glu Ile
         2035   2040   2045

Phe Asn Met Pro Ala Ile Thr Gly Ala Gly Leu Met Thr Cys Arg Ser
    2050   2055   2060

39

```
Gln Ala Val Gln Glu His Ala Ser Thr Asn Met Gly Leu Glu Ala Ile
2065              2070              2075              2080

Ile Arg Lys Ala Leu Met Gly Lys Tyr Asp Gln Trp Glu Glu Pro Pro
          2085              2090              2095

Pro Leu Gly Ala Asn Ala Phe Asn Pro Leu Asn Ala Ser Ala Ser Leu
          2100              2105              2110

Pro Ala Ala Ala Met Pro Ile Thr Thr Ala Asp Gly Arg Ser Asp His
     2115              2120              2125

Ala Leu Thr Ser Pro Gly Gly Gly Gly Lys Ala Lys Val Ser Gly Arg
     2130              2135              2140

Pro Ser Ser Arg Lys Ala Lys Ser Pro Ala Pro Gly Leu Ala Ser Gly
2145              2150              2155              2160

Asp Arg Pro Pro Ser Val Ser Ser Val His Ser Glu Gly Asp Cys Asn
          2165              2170              2175

Arg Arg Thr Pro Leu Thr Asn Arg Val Trp Glu Asp Arg Pro Ser Ser
          2180              2185              2190

Ala Gly Ser Thr Pro Phe Pro Tyr Asn Pro Leu Ile Met Arg Leu Gln
          2195              2200              2205

Ala Gly Val Met Ala Ser Pro Pro Pro Pro Gly Leu Ala Ala Gly Ser
     2210              2215              2220

Gly Pro Leu Ala Gly Pro His His Ala Trp Asp Glu Glu Pro Lys Pro
2225              2230              2235              2240

Leu Leu Cys Ser Gln Tyr Glu Thr Leu Ser Asp Ser Glu
          2245              2250
```

<210> 10
<211> 7940
<212> DNA
<213> Homo sapiens

<400> 10
```
ccaagatggc ggccaaggtg gcgaagcagc agccgcggcg gcggcggcgg ctggagtgag  60
cgtccgactc gccgcgccga acgaggtccc ggtgtagggc cgcgcgccgt ggccgcgtcc  120
cactcctcag gccggggcgc acgtcggctc ccacgcttag ccagctcccg gtggtttcct  180
agaaacatga ttgtttattg gcattgatct cacagtctgg tgaggacttc tttactgata  240
atgtcaagtt caggttatcc tcccaaccaa ggagcattca gcacagaaca aagtcgttat  300
cctcctcact ctgtccagta tacatttccc aacacccgcc accagcagga gttcgcagtc  360
cctgattatc gttcctctca tcttgaagtg agtcaggcat cacagctttt gcagcaacag  420
cagcagcaac agcttcgaag gcgaccttcc ttgctttcag aatttcaccc aggttctgac  480
aggcctcaag aaaggagaac tagttatgaa ccgtttcatc caggcccatc cccagtggat  540
catgattcac tggaatcgaa gcgaccacgt ctggaacagg tttctgattc tcattttcag  600
cgtgtcagtg ctgcggtttt gcctttagtg cacccgctgc agaagggct gagggcttct  660
gcagatgcta agaaggatcc agcattcgga ggcaaacatg aagctccatc ctctccaatt  720
tcggggcaac catgtggaga tgatcaaaat gcttcacctt caaaactctc aaaggaagag  780
ttaatacaga gtatggatcg tgtagatcga gaaattgcaa aagtagaaca gcagatcctt  840
aaactgaaaa agaaacaaca acagcttgaa gaagaggcag ctaaacctcc tgagcctgag  900
```

40

```
aagcccgtgt cccctcctcc tgtggagcag aaacaccgca gtattgtcca aattatttat 960
gatgagaatc ggaaaaaagc agaagaagct cataaaattt ttgaaggtct tggcccaaaa 1020
gttgaactgc cactgtataa ccagccatca gataccaagg tgtaccatga gaacatcaag 1080
acaaaccagg tgatgaggaa aaaactcatt ttatttttta aaagaagaaa tcatgcaaga 1140
aaacaaaggg aacaaaaaat ctgccagcgt tatgatcagc tcatggaggc atgggagaaa 1200
aaagtggaca gaatagaaaa taatcctcgg aggaaagcta aagaaagcaa aacaagggaa 1260
tactatgaaa agcagtttcc agaaattcga aaacaaagag aacagcaaga aagatttcag 1320
cgagttgggc agaggggagc tggtctttca gccaccattg ctaggagtga gcatgagatt 1380
tctgaaatta ttgatgggct ctctgagcag gagaataatg agaaacaaat gcggcagctc 1440
tctgtgattc cacctatgat gtttgatgca gaacaaagac gagtcaagtt cattaacatg 1500
aatgggctta tggaggaccc tatgaaagtg tataaagata ggcagtttat gaatgtttgg 1560
actgaccatg aaaaggagat ctttaaggac aagtttatcc agcatccaaa aaactttgga 1620
ctaattgcat catacttgga gaggaagagt gttcctgatt gtgtttgtgta ttactattta 1680
accaagaaaa atgagaatta taaagccctc gtcagaagga attatgggaa acgcagaggc 1740
agaaaccagc aaattgctcg accctcgcaa gaagaaaaag tagaagaaaa agaagaggat 1800
aaagcagaaa aaacagaaaa aaaagaagaa gaaagaaaag atgaagagga aaaagatgaa 1860
aaagaagact ccaaagaaaa taccaaggaa aaggacaaga tagatggtac agcagaagaa 1920
actgaggaaa gagagcaagc cacaccccgg gggcgaaaga ctgccaacag tcagggccgc 1980
cgtaagggcc ggatcaccag gtccatgaca aacgaagctg cagctgccag tgctgcagcc 2040
gcagcggcta ctgaagagcc cccaccacct ctgccaccgc caccagaacc catttctaca 2100
gagcctgtgg agacctctcg atggacagaa gaagaaatgg aagttgctaa aaaaggtcta 2160
gtagaacatg gtcgtaactg ggcagcaatt gctaaaatgg tgggaacgaa aagtgaagct 2220
caatgtaaaa acttctattt taactataaa aggcgacaca atcttgacaa cctcttacag 2280
cagcataaac agaaaacttc acgaaaacct cgtgaagagc gagatgtgtc tcaatgtgaa 2340
agtgtcgctt ccactgtttc tgctcaggag gatgaagata ttgaagcctc caatgaagaa 2400
gaaaatccag aagacagcga agttgaagct gtcaagccca gcgaggacag tcctgaaaat 2460
gctacttctc gaggaaacac agaacctgcg gttgagcttg agcccaccac ggaaactgca 2520
cccagtacat ctccctcctt agcagttcca agtacaaaac cagctgaaga tgaaagtgtg 2580
gagacccagg tgaatgacag catcagtgct gagacagcag agcagatgga tgtagatcag 2640
caggagcaca gtgctgaaga gggttctgtt tgtgatcccc cacccgctac caaagctgac 2700
tctgtggacg ttgaagtgag ggtgccagaa aaccatgcat ctaaagttga aggtgataat 2760
accaaagaaa gagacttgga tagagccagt gagaaggtgg aacctagaga tgaagatttg 2820
gtggtagctc agcaaataaa tgcccaaagg cccgagcccc agtcagacaa tgattccagt 2880
gccacgtgca gcgctgatga ggatgtggat ggagagccag agaggcagag aatgtttcct 2940
atggactcaa agccttcact gttaaacccc actggatcta tactcgtctc atctccgtta 3000
aaaccaaatc cactggatcc gccacagctt cagcatcgag ctgctgttat cccaccaatg 3060
gtatcctgca ccccatgtaa cataccaatt ggaaccccag tgagcggcta tgctctctac 3120
cagcgacaca ttaaagcaat gcatgagtca gcactcctgg aggagcagcg gcagagacaa 3180
gaacagatag atttggaatg tagaagttct acaagtccat gtggcacatc caagagtcca 3240
aacagagagt gggaagtcct tcagcctgct ccacatcaat tgataactaa tctccctgaa 3300
ggcgttcggc ttccgacaac tcgaccaacc aggccaccgc cccctctcat cccgtcatcc 3360
aaaaccacag tggcttcaga aaaaccatct tttataatgg gaggctccat ctcacaggga 3420
acaccaggca cttatttgac ttctcataat caggcttcct acactcaaga aacacccaag 3480
ccgtcagtag gatctatctc tcttggactg ccacggcaac aggaatctgc caaatcagct 3540
actttgccct acatcaagca ggaagaattt tctccccgaa gccaaaactc acaacctgag 3600
ggtctgttgg tcagggccca acatgaaggt gtagtcagag gtaccgcagg agccatacaa 3660
gaaggaagta taactcgggg aactccaacc agcaaaattt cagtggagag cattccatcc 3720
ctacgggct ctatcactca gggcaccccg gctctgcccc agactggcat accaacagag 3780
gctttggtga gggggtccat ttcgagaatg cccattgaag acagcagtcc tgagaaaggc 3840
agagaggaag ctgcatccaa aggccatgtt atttatgaag caaaagtgg acatatcttg 3900
tcatatgata atattaagaa tgcccgagaa gggactagga gtccaagaac agctcatgaa 3960
atcagtttaa agagaagcta tgaatcagtg gaaggaaata taaagcaagg gatgtcaatg 4020
agggagtctc ctgtatcagc accgttagag gggctgatat ccgagcatt acccaggggg 4080
agtcctcatt ctgacctcaa agaaaggact gtattgtctg ctccataat gcagggaca 4140
ccaagagcaa caactgaaag ctttgaagat ggccttaaat atcccaaaca aattaaaagg 4200
gaaagtcctc ccatacgagc atttgaaggt gccattacca aaggaaaacc atatgatggc 4260
atcaccacca tcaaagaaat ggggcgttcc attcatgaga ttccaaggca agatattta 4320
actcaggaaa gtcggaaaac tccagaagtg gtccagagca cacggccgat aattgagggt 4380
```

41

```
tccatttccc agggcacacc aataaagttt gacaacaact caggtcaatc tgccatcaaa 4440
cacaatgtca aatccttaat cacggggcct agcaaactat cccgtggaat gcctccgctg 4500
gaaattgtgc cagagaacat aaaagtggta gaacggggaa aatatgagga tgtgaaagca 4560
ggcgagaccg tgcgttcccg gcacacgtca gtggtaagct ctggcccctc cgttcttagg 4620
tccacactgc atgaagctcc caaagcacaa ctgagccctg ggatttatga tgacaccagt 4680
gcacggagga cccctgtgag ttatcaaaac accatgtcca gaggctcacc catgatgaac 4740
agaacttctg atgttacaat tcctcctaac aagtctacca atcatgaaag gaaatcgaca 4800
ctgacccta cccagaggga aagtatccca gcgaagtctc cagtgcctgg ggtggaccct 4860
gtcgtgagcc acagtccgtt tgatccccat cacagaggca gcactgcagg cgaggtttat 4920
tggagccacc tgcccacgca attggatcca gccatgcctt ttcacagggc tttggatcct 4980
gcagcggctg cttacctgtt tcagagacag ctttcaccaa ctccaggtta cccaagtcag 5040
tatcagcttt acgcaatgga gaacacaaga cagacaatct taaatgatta cattacctca 5100
caacagatgc aagtgaactt gcgtccagat gtggccagag gactctcccc aagagagcag 5160
ccactgggtc tcccataccc agcaacgaga ggaatcattg acctgaccaa tatgcctcca 5220
acaatttttag tgcctcatcc aggggggaaca agcactcctc ccatggacag aatcacttat 5280
attcctggta cacagattac tttccctccc aggccgtaca actctgcttc catgtctcca 5340
ggacacccaa cacaccttgc agctgctgca agtgctgaga gggaacggga acgggagcgg 5400
gagaaggagc gggagcggga acggattgct gcagcttcct ccgacctcta cctgcggcca 5460
ggctcagaac agcctggccg acctggcagt catggatatg ttcgctcccc cctgcggcca 5460
gtaagaactc aggagaccat gttgcaacag agacccagtg ttttccaagg aaccaatgga 5580
accagtgtaa tcacaccttt ggatccaact gctcagctac gaatcatgcc actgcctgct 5640
ggggggcctt caataagcca aggcctgcca gcctcccgtt acaacactgc tgcggatgcc 5700
ctggctgctc ttgtggatgc tgcagcttct gcaccccaga tggatgtgtc caaaacaaaa 5760
gagagtaagc atgaagctgc caggttagaa gaaaatttga gaagcaggtc agcagcagtt 5820
agtgaacagc agcagctaga gcagaaaacc ctggaggtgg agaagagatc tgttcagtgt 5880
ttatacactt cttcagcctt tccaagtggc aagccccagc ctcattcttc agtagtttat 5940
tctgaggctg ggaaagataa agggcctcct ccaaaatcca gatatgagga agagctaagg 6000
accagaggga agactaccat tactgcagct aacttcatag acgtgatcat caccccggcaa 6060
attgcctcgg acaaggatgc gagggaacgt ggctctcaaa gttcagactc ttctagtagc 6120
ttatcttctc acaggtatga aacacctagc gatgctattg aggtgataag tcctgccagc 6180
tcacctgcgc caccccagga gaaactgcag acctatcagc cagaggttgt taaggcaaat 6240
caagcggaaa atgatcctac cagacaatat gaaggaccat tacatcacta tcgaccacag 6300
caggaatcac catctcccca acaacagctg ccccccttctt cacaggcaga gggaatgggg 6360
caagtgccca ggacccatcg gctgatcaca cttgctgatc acatctgtca aattatcaca 6420
caagattttg ctagaaatca agtttcctcg cagactcccc agcagcctcc tacttctaca 6480
ttccagaact caccttctgc tttggtatct acacctgtga ggactaaaac atcaaaccgt 6540
tacagcccag aatcccaggc tcagtctgtc catcatcaaa gaccaggttc aagggtctct 6600
ccagaaaatc ttgtggacaa atccagggga agtaggcctg gaaaatcccc agagaggagt 6660
cacgtctctt ccgagcccta cgagcccatc tccccacccc aggttccggt tgtgcatgag 6720
aaacaggaca gcttgctgct cttgtctcag aggggcgcag agcctgcaga gcagaggaat 6780
gatgcccgct caccagggag tataagctac ttgccttcat tcttcaccaa gcttgaaaat 6840
acatcaccca tggttaaatc aaagaagcag gagattttc gtaagttgaa ctcctctggt 6900
ggaggtgact ctgatatggc agctgctcag ccaggaactg agatctttaa tctgccagca 6960
gttactacgt caggctcagt tagctctaga ggccattctt ttgctgatcc tgccagtaat 7020
cttgggctgg aagacattat caggaaggct ctcatgggaa gctttgatga caaagttgag 7080
gatcatggag ttgtcatgtc ccagcctatg ggagtagtgc ctggtactga caaagttgag 7080
gttgtgacca gtggtgagac acgaagagag gaaggggacc catcacctca caacacctca 7140
gtttgcaaac caaagctgat cagcaagtca aacagcagga aatctaagtc ttcaggagga 7200
gggcaaggct acttaggaac ggaacggccc tcttcagtct cctctgtaca tcctatacct 7260
gattaccata ggcagacgcc agggtgggcc tgggaagaca ggccctcttc aacaggctca 7320
actcagtttc cttataaccc tctgactatg cggatgctca gcagtactcc accaacaccg 7380
attgcatgtg ctccctctgc ggtgaaccaa gcagctcctc accaacagaa caggatctgg 7440
gagcgagagc ctgccccact gctctcagca cagtacgaga ccctgtcgga tagtgatgac 7500
tgaactgcac aaagtgaggg gaacagggtg caggagaggg atctctagtt tttgtggttt 7560
aattttagt agcaggtcaa aaacctgccc tcctgtgact tattccctga gactttcag 7620
gagagccagc ccacagatga tgaagaaatg atggaagttc atttggagag tcaaatggga 7680
aaaaaacaaa caaaaaactg cctttgatac aggcaattca gtggactata ataatagtgg 7740
agggttgaga tgtagagttt ttaaaaagtg aacagttgct gttcttacat ctgtaaagaa 7800
                                                                   7860
```

42

aaccataatg tctttaaatc actcttctgt aaatagatga cctttttgca gtgtaaaaaa 7920
aaaaaaaaaa aaaaaaaaaa   7940

<210> 11
<211> 2440
<212> PRT
<213> Homo sapiens

<400> 11
Met Ser Ser Ser Gly Tyr Pro Pro Asn Gln Gly Ala Phe Ser Thr Glu
1   5   10   15

Gln Ser Arg Tyr Pro Pro His Ser Val Gln Tyr Thr Phe Pro Asn Thr
            20   25   30

Arg His Gln Gln Glu Phe Ala Val Pro Asp Tyr Arg Ser Ser His Leu
        35   40   45

Glu Val Ser Gln Ala Ser Gln Leu Leu Gln Gln Gln Gln Gln Gln Gln
    50   55   60

Leu Arg Arg Arg Pro Ser Leu Leu Ser Glu Phe His Pro Gly Ser Asp
65   70   75   80

Arg Pro Gln Glu Arg Arg Thr Ser Tyr Glu Pro Phe His Pro Gly Pro
                85   90   95

Ser Pro Val Asp His Asp Ser Leu Glu Ser Lys Arg Pro Arg Leu Glu
                100   105   110

Gln Val Ser Asp Ser His Phe Gln Arg Val Ser Ala Ala Val Leu Pro
        115   120   125

Leu Val His Pro Leu Pro Glu Gly Leu Arg Ala Ser Ala Asp Ala Lys
    130   135   140

Lys Asp Pro Ala Phe Gly Gly Lys His Glu Ala Pro Ser Ser Pro Ile
145   150   155   160

Ser Gly Gln Pro Cys Gly Asp Asp Gln Asn Ala Ser Pro Ser Lys Leu
                165   170   175

Ser Lys Glu Glu Leu Ile Gln Ser Met Asp Arg Val Asp Arg Glu Ile
            180   185   190

Ala Lys Val Glu Gln Gln Ile Leu Lys Leu Lys Lys Lys Gln Gln Gln
        195   200   205

Leu Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys Pro Val Ser
    210   215   220

Pro Pro Pro Val Glu Gln Lys His Arg Ser Ile Val Gln Ile Ile Tyr
225   230   235   240

Asp Glu Asn Arg Lys Lys Ala Glu Glu Ala His Lys Ile Phe Glu Gly
                245   250   255

43

```
Leu Gly Pro Lys Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr
            260             265             270

Lys Val Tyr His Glu Asn Ile Lys Thr Asn Gln Val Met Arg Lys Lys
            275             280             285

Leu Ile Leu Phe Phe Lys Arg Arg Asn His Ala Arg Lys Gln Arg Glu
    290             295             300

Gln Lys Ile Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Trp Glu Lys
305             310             315             320

Lys Val Asp Arg Ile Glu Asn Asn Pro Arg Arg Lys Ala Lys Glu Ser
            325             330             335

Lys Thr Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln
            340             345             350

Arg Glu Gln Gln Glu Arg Phe Gln Arg Val Gly Gln Arg Gly Ala Gly
            355             360             365

Leu Ser Ala Thr Ile Ala Arg Ser Glu His Glu Ile Ser Glu Ile Ile
    370             375             380

Asp Gly Leu Ser Glu Gln Glu Asn Asn Glu Lys Gln Met Arg Gln Leu
305             390             395             400

Ser Val Ile Pro Pro Met Met Phe Asp Ala Glu Gln Arg Arg Val Lys
            405             410             415

Phe Ile Asn Met Asn Gly Leu Met Glu Asp Pro Met Lys Val Tyr Lys
            420             425             430

Asp Arg Gln Phe Met Asn Val Trp Thr Asp His Glu Lys Glu Ile Phe
    435             440             445

Lys Asp Lys Phe Ile Gln His Pro Lys Asn Phe Gly Leu Ile Ala Ser
    450             455             460

Tyr Leu Glu Arg Lys Ser Val Pro Asp Cys Val Leu Tyr Tyr Tyr Leu
465             470             475             480

Thr Lys Lys Asn Glu Asn Tyr Lys Ala Leu Val Arg Arg Asn Tyr Gly
            485             490             495

Lys Arg Arg Gly Arg Asn Gln Gln Ile Ala Arg Pro Ser Gln Glu Glu
            500             505             510

Lys Val Glu Glu Lys Glu Glu Asp Lys Ala Glu Lys Thr Glu Lys Lys
            515             520             525

Glu Glu Glu Lys Lys Asp Glu Glu Glu Lys Asp Glu Lys Glu Asp Ser
    530             535             540

Lys Glu Asn Thr Lys Glu Lys Asp Lys Ile Asp Gly Thr Ala Glu Glu
545             550             555             560
```

44

Thr Glu Glu Arg Glu Gln Ala Thr Pro Arg Gly Arg Lys Thr Ala Asn
              565   570   575

Ser Gln Gly Arg Arg Lys Gly Arg Ile Thr Arg Ser Met Thr Asn Glu
            580   585   590

Ala Ala Ala Ala Ser Ala Ala Ala Ala Ala Ala Thr Glu Glu Pro Pro
        595   600   605

Pro Pro Leu Pro Pro Pro Pro Glu Pro Ile Ser Thr Glu Pro Val Glu
    610   615   620

Thr Ser Arg Trp Thr Glu Glu Glu Met Glu Val Ala Lys Lys Gly Leu
625   630   635   640

Val Glu His Gly Arg Asn Trp Ala Ala Ile Ala Lys Met Val Gly Thr
                645   650   655

Lys Ser Glu Ala Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Arg Arg
            660   665   670

His Asn Leu Asp Asn Leu Leu Gln Gln His Lys Gln Lys Thr Ser Arg
        675   680   685

Lys Pro Arg Glu Glu Arg Asp Val Ser Gln Cys Glu Ser Val Ala Ser
    690   695   700

Thr Val Ser Ala Gln Glu Asp Glu Asp Ile Glu Ala Ser Asn Glu Glu
705   710   715   720

Glu Asn Pro Glu Asp Ser Glu Val Glu Ala Val Lys Pro Ser Glu Asp
                725   730   735

Ser Pro Glu Asn Ala Thr Ser Arg Gly Asn Thr Glu Pro Ala Val Glu
            740   745   750

Leu Glu Pro Thr Thr Glu Thr Ala Pro Ser Thr Ser Pro Ser Leu Ala
        755   760   765

Val Pro Ser Thr Lys Pro Ala Glu Asp Glu Ser Val Glu Thr Gln Val
    770   775   780

Asn Asp Ser Ile Ser Ala Glu Thr Ala Glu Gln Met Asp Val Asp Gln
785   790   795   800

Gln Glu His Ser Ala Glu Glu Gly Ser Val Cys Asp Pro Pro Pro Ala
            805   810   815

Thr Lys Ala Asp Ser Val Asp Val Glu Val Arg Val Pro Glu Asn His
            820   825   830

Ala Ser Lys Val Glu Gly Asp Asn Thr Lys Glu Arg Asp Leu Asp Arg
        835   840   845

Ala Ser Glu Lys Val Glu Pro Arg Asp Glu Asp Leu Val Val Ala Gln
    850   855   860

45

```
Gln Ile Asn Ala Gln Arg Pro Glu Pro Gln Ser Asp Asn Asp Ser Ser
865             870         875             880

Ala Thr Cys Ser Ala Asp Glu Asp Val Asp Gly Glu Pro Glu Arg Gln
            885         890             895

Arg Met Phe Pro Met Asp Ser Lys Pro Ser Leu Leu Asn Pro Thr Gly
            900         905             910

Ser Ile Leu Val Ser Ser Pro Leu Lys Pro Asn Pro Leu Asp Leu Pro
            915         920             925

Gln Leu Gln His Arg Ala Ala Val Ile Pro Pro Met Val Ser Cys Thr
            930         935             940

Pro Cys Asn Ile Pro Ile Gly Thr Pro Val Ser Gly Tyr Ala Leu Tyr
945             950         955             960

Gln Arg His Ile Lys Ala Met His Glu Ser Ala Leu Leu Glu Glu Gln
            965         970             975

Arg Gln Arg Gln Glu Gln Ile Asp Leu Glu Cys Arg Ser Ser Thr Ser
            980         985             990

Pro Cys Gly Thr Ser Lys Ser Pro Asn Arg Glu Trp Glu Val Leu Gln
            995         1000            1005

Pro Ala Pro His Gln Leu Ile Thr Asn Leu Pro Glu Gly Val Arg Leu
            1010        1015            1020

Pro Thr Thr Arg Pro Thr Arg Pro Pro Pro Pro Leu Ile Pro Ser Ser
1025            1030        1035            1040

Lys Thr Thr Val Ala Ser Glu Lys Pro Ser Phe Ile Met Gly Gly Ser
            1045        1050            1055

Ile Ser Gln Gly Thr Pro Gly Thr Tyr Leu Thr Ser His Asn Gln Ala
            1060        1065            1070

Ser Tyr Thr Gln Glu Thr Pro Lys Pro Ser Val Gly Ser Ile Ser Leu
            1075        1080            1085

Gly Leu Pro Arg Gln Gln Glu Ser Ala Lys Ser Ala Thr Leu Pro Tyr
            1090        1095            1100

Ile Lys Gln Glu Glu Phe Ser Pro Arg Ser Gln Asn Ser Gln Pro Glu
1105            1110        1115            1120

Gly Leu Leu Val Arg Ala Gln His Glu Gly Val Val Arg Gly Thr Ala
            1125        1130            1135

Gly Ala Ile Gln Glu Gly Ser Ile Thr Arg Gly Thr Pro Thr Ser Lys
            1140        1145            1150

Ile Ser Val Glu Ser Ile Pro Ser Leu Arg Gly Ser Ile Thr Gln Gly
            1155        1160            1165
```

46

```
Thr Pro Ala Leu Pro Gln Thr Gly Ile Pro Thr Glu Ala Leu Val Lys
    1170            1175            1180

Gly Ser Ile Ser Arg Met Pro Ile Glu Asp Ser Ser Pro Glu Lys Gly
1185            1190            1195            1200

Arg Glu Glu Ala Ala Ser Lys Gly His Val Ile Tyr Glu Gly Lys Ser
            1205            1210            1215

Gly His Ile Leu Ser Tyr Asp Asn Ile Lys Asn Ala Arg Glu Gly Thr
        1220            1225            1230

Arg Ser Pro Arg Thr Ala His Glu Ile Ser Leu Lys Arg Ser Tyr Glu
        1235            1240            1245

Ser Val Glu Gly Asn Ile Lys Gln Gly Met Ser Met Arg Glu Ser Pro
    1250            1255            1260

Val Ser Ala Pro Leu Glu Gly Leu Ile Cys Arg Ala Leu Pro Arg Gly
1265            1270            1275            1280

Ser Pro His Ser Asp Leu Lys Glu Arg Thr Val Leu Ser Gly Ser Ile
            1285            1290            1295

Met Gln Gly Thr Pro Arg Ala Thr Thr Glu Ser Phe Glu Asp Gly Leu
        1300            1305            1310

Lys Tyr Pro Lys Gln Ile Lys Arg Glu Ser Pro Pro Ile Arg Ala Phe
        1315            1320            1325

Glu Gly Ala Ile Thr Lys Gly Lys Pro Tyr Asp Gly Ile Thr Thr Ile
    1330            1335            1340

Lys Glu Met Gly Arg Ser Ile His Glu Ile Pro Arg Gln Asp Ile Leu
1345            1350            1355            1360

Thr Gln Glu Ser Arg Lys Thr Pro Glu Val Val Gln Ser Thr Arg Pro
            1365            1370            1375

Ile Ile Glu Gly Ser Ile Ser Gln Gly Thr Pro Ile Lys Phe Asp Asn
        1380            1385            1390

Asn Ser Gly Gln Ser Ala Ile Lys His Asn Val Lys Ser Leu Ile Thr
        1395            1400            1405

Gly Pro Ser Lys Leu Ser Arg Gly Met Pro Pro Leu Glu Ile Val Pro
    1410            1415            1420

Glu Asn Ile Lys Val Val Glu Arg Gly Lys Tyr Glu Asp Val Lys Ala
1425            1430            1435            1440

Gly Glu Thr Val Arg Ser Arg His Thr Ser Val Val Ser Ser Gly Pro
            1445            1450            1455

Ser Val Leu Arg Ser Thr Leu His Glu Ala Pro Lys Ala Gln Leu Ser
    1460            1465            1470
```

47

```
Pro Gly Ile Tyr Asp Asp Thr Ser Ala Arg Arg Thr Pro Val Ser Tyr
    1475              .       1480          1485

Gln Asn Thr Met Ser Arg Gly Ser Pro Met Met Asn Arg Thr Ser Asp
    1490              1495              1500

Val Thr Ile Pro Pro Asn Lys Ser Thr Asn His Glu Arg Lys Ser Thr
1505              1510              1515              1520

Leu Thr Pro Thr Gln Arg Glu Ser Ile Pro Ala Lys Ser Pro Val Pro
             1525              1530              1535

Gly Val Asp Pro Val Val Ser His Ser Pro Phe Asp Pro His His Arg
             1540              1545              1550

Gly Ser Thr Ala Gly Glu Val Tyr Trp Ser His Leu Pro Thr Gln Leu
        1555              1560              1565

Asp Pro Ala Met Pro Phe His Arg Ala Leu Asp Pro Ala Ala Ala Ala
    1570              1575              1580

Tyr Leu Phe Gln Arg Gln Leu Ser Pro Thr Pro Gly Tyr Pro Ser Gln
1585              1590              1595              1600

Tyr Gln Leu Tyr Ala Met Glu Asn Thr Arg Gln Thr Ile Leu Asn Asp
             1605              1610              1615

Tyr Ile Thr Ser Gln Gln Met Gln Val Asn Leu Arg Pro Asp Val Ala
        1620              1625              1630

Arg Gly Leu Ser Pro Arg Glu Gln Pro Leu Gly Leu Pro Tyr Pro Ala
        1635              1640              1645

Thr Arg Gly Ile Ile Asp Leu Thr Asn Met Pro Pro Thr Ile Leu Val
    1650              1655              1660

Pro His Pro Gly Gly Thr Ser Thr Pro Pro Met Asp Arg Ile Thr Tyr
1665              1670              1675              1680

Ile Pro Gly Thr Gln Ile Thr Phe Pro Pro Arg Pro Tyr Asn Ser Ala
        1685              1690              1695

Ser Met Ser Pro Gly His Pro Thr His Leu Ala Ala Ala Ala Ser Ala
        1700              1705              1710

Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Glu Arg Glu Arg Glu Arg
        1715              1720              1725

Ile Ala Ala Ala Ser Ser Asp Leu Tyr Leu Arg Pro Gly Ser Glu Gln
    1730              1735              1740

Pro Gly Arg Pro Gly Ser His Gly Tyr Val Arg Ser Pro Ser Pro Ser
    1745              1750              1755              1760

Val Arg Thr Gln Glu Thr Met Leu Gln Gln Arg Pro Ser Val Phe Gln
        1765              1770       .       1775
```

48

Gly Thr Asn Gly Thr Ser Val Ile Thr Pro Leu Asp Pro Thr Ala Gln
      1780   1785   1790

Leu Arg Ile Met Pro Leu Pro Ala Gly Gly Pro Ser Ile Ser Gln Gly
      1795   1800   1805

Leu Pro Ala Ser Arg Tyr Asn Thr Ala Ala Asp Ala Leu Ala Ala Leu
   1810   1815   1820

Val Asp Ala Ala Ala Ser Ala Pro Gln Met Asp Val Ser Lys Thr Lys
1825   1830   1835   1840

Glu Ser Lys His Glu Ala Ala Arg Leu Glu Glu Asn Leu Arg Ser Arg
         1845   1850   1855

Ser Ala Ala Val Ser Glu Gln Gln Gln Leu Glu Gln Lys Thr Leu Glu
         1860   1865   1870

Val Glu Lys Arg Ser Val Gln Cys Leu Tyr Thr Ser Ser Ala Phe Pro
         1875   1880   1885

Ser Gly Lys Pro Gln Pro His Ser Ser Val Val Tyr Ser Glu Ala Gly
   1890   1895   1900

Lys Asp Lys Gly Pro Pro Pro Lys Ser Arg Tyr Glu Glu Glu Leu Arg
1905   1910   1915   1920

Thr Arg Gly Lys Thr Thr Ile Thr Ala Ala Asn Phe Ile Asp Val Ile
         1925   1930   1935

Ile Thr Arg Gln Ile Ala Ser Asp Lys Asp Ala Arg Glu Arg Gly Ser
         1940   1945   1950

Gln Ser Ser Asp Ser Ser Ser Ser Leu Ser Ser His Arg Tyr Glu Thr
      1955   1960   1965

Pro Ser Asp Ala Ile Glu Val Ile Ser Pro Ala Ser Ser Pro Ala Pro
   1970   1975   1980

Pro Gln Glu Lys Leu Gln Thr Tyr Gln Pro Glu Val Val Lys Ala Asn
1985   1990   1995   2000

Gln Ala Glu Asn Asp Pro Thr Arg Gln Tyr Glu Gly Pro Leu His His
         2005   2010   2015

Tyr Arg Pro Gln Gln Glu Ser Pro Ser Pro Gln Gln Gln Leu Pro Pro
      2020   2025   2030

Ser Ser Gln Ala Glu Gly Met Gly Gln Val Pro Arg Thr His Arg Leu
   2035   2040   2045

Ile Thr Leu Ala Asp His Ile Cys Gln Ile Ile Thr Gln Asp Phe Ala
   2050   2055   2060

Arg Asn Gln Val Ser Ser Gln Thr Pro Gln Gln Pro Pro Thr Ser Thr
2065   2070   2075   2080

49

Phe Gln Asn Ser Pro Ser Ala Leu Val Ser Thr Pro Val Arg Thr Lys
            2085   2090   2095

Thr Ser Asn Arg Tyr Ser Pro Glu Ser Gln Ala Gln Ser Val His His
            2100   2105   2110

Gln Arg Pro Gly Ser Arg Val Ser Pro Glu Asn Leu Val Asp Lys Ser
            2115   2120   2125

Arg Gly Ser Arg Pro Gly Lys Ser Pro Glu Arg Ser His Val Ser Ser
    2130   2135   2140

Glu Pro Tyr Glu Pro Ile Ser Pro Pro Gln Val Pro Val Val His Glu
2145   2150   2155   2160

Lys Gln Asp Ser Leu Leu Leu Leu Ser Gln Arg Gly Ala Glu Pro Ala
            2165   2170   2175

Glu Gln Arg Asn Asp Ala Arg Ser Pro Gly Ser Ile Ser Tyr Leu Pro
            2180   2185   2190

Ser Phe Phe Thr Lys Leu Glu Asn Thr Ser Pro Met Val Lys Ser Lys
            2195   2200   2205

Lys Gln Glu Ile Phe Arg Lys Leu Asn Ser Ser Gly Gly Gly Asp Ser
    2210   2215   2220

Asp Met Ala Ala Ala Gln Pro Gly Thr Glu Ile Phe Asn Leu Pro Ala
2225   2230   2235   2240

Val Thr Thr Ser Gly Ser Val Ser Ser Arg Gly His Ser Phe Ala Asp
            2245   2250   2255

Pro Ala Ser Asn Leu Gly Leu Glu Asp Ile Ile Arg Lys Ala Leu Met
            2260   2265   2270

Gly Ser Phe Asp Asp Lys Val Glu Asp His Gly Val Val Met Ser Gln
    2275   2280   2285

Pro Met Gly Val Val Pro Gly Thr Ala Asn Thr Ser Val Val Thr Ser
    2290   2295   2300

Gly Glu Thr Arg Arg Glu Glu Gly Asp Pro Ser Pro His Ser Gly Gly
2305   2310   2315   2320

Val Cys Lys Pro Lys Leu Ile Ser Lys Ser Asn Ser Arg Lys Ser Lys
            2325   2330   2335

Ser Pro Ile Pro Gly Gln Gly Tyr Leu Gly Thr Glu Arg Pro Ser Ser
            2340   2345   2350

Val Ser Ser Val His Ser Glu Gly Asp Tyr His Arg Gln Thr Pro Gly
    2355   2360   2365

Trp Ala Trp Glu Asp Arg Pro Ser Ser Thr Gly Ser Thr Gln Phe Pro
    2370   2375   2380

50

```
Tyr Asn Pro Leu Thr Met Arg Met Leu Ser Ser Thr Pro Pro Thr Pro
2385            2390            2395            Pro Pro     ·2400

Ile Ala Cys Ala Pro Ser Ala Val Asn Gln Ala Ala Pro His Gln Gln
                2405            2410            2415

Asn Arg Ile Trp Glu Arg Glu Pro Ala Pro Leu Leu Ser Ala Gln Tyr
            2420            2425            2430

Glu Thr Leu Ser Asp Ser Asp Asp
        2435            2440


<210> 12
<211> 3446
<212> PRT
<213> Drosophila sp.

<400> 12
Met Ser Ala Tyr Gln Gln Arg Leu Pro Ser Asn Ala Ala Ser Ile His
  1            5            10            15

Ser Pro His Trp Ser Tyr Arg Ala Leu Glu Gln Gln Gln Gln Tyr Ala
            20            25            30

Lys Gln Ala Ala His Leu Gln Gln Gln Gln His Gln Ser His Gln Gln
        35            40            45

Gln Gln Gln Gln Gln Gln Asp Gln Arg Thr Asn Leu His Leu Gln Ile
      50            55            60

His His His His Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
  65            70            75            80

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Lys Gln Gln Gln His
            85            90            95

His Met Gln Gln Gln Gln Gln Gln Pro Leu Ser Pro Pro His Pro
            100            105            110

Pro Gly Ser Ser Ser Asn Ser Ser Ser Ala Ala Ala Ala Ala Ala Ala
        115            120            125

Ala Ala Ala Ala Ala Ala Ala Val Asn Pro Gly Tyr Pro Pro Ser Ser
130            135            140

Ala Ala Ala Ala Ala Val Asn Ser Gly Tyr Pro Pro Arg Pro Pro Gln
145            150            155            160

His Arg Phe Ile Gln Asn Thr Gly Tyr Ser Ile Ala Pro Ala Pro Thr
            165            170            175

Tyr Arg Asp Asn Pro Tyr Ser Arg His Thr Gln Ile Gln Gln Gln Gln
            180            185            190

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
        195            200            205
```

51

```
Gln Gln Gln Gln Ala Ala Ala Ser Met Pro Glu Tyr Gln Arg Ala Ala
    210              215              220

Ala Arg Ala Ala Val Ala Ala Val Ser Ala Gly Lys Gly Asn Val Ser
225              230              235              240

Gly Gln Ser Ser Asn Ser Ser Ser Ser Ser Ser Gly Gly Gly Gly Gly
            245              250              255

Gly Gly Ser Ala Gly Gly Ser Ala Pro Pro Gly Gly Gly Val Val Gln
        260              265              270

Val Ser Gln Ser Gly Gly Val Leu Val Met Glu Ala Met Pro His Tyr
        275              280              285

Ala Ser Gln Pro Asn Ser Asn Pro Ser Gln Gln Gln Gln Gln Gln
    290              295              300

Gln Gln Gln Gln Gly Gly Asn Pro Ser Gly Ala Gly Ala Thr Ser Gly
305              310              315              320

Ala Gly Gly Gly Gly Gly Gly Ser Gly Gly Ser Val Met Val Gly Ser
            325              330              335

Leu Gly Arg Ile Leu Met Pro His Pro Gln Ala Leu Gln Tyr Thr Ser
        340              345              350

Glu Tyr Leu Thr Asn Ala Thr Ala Ala Val Ala Ala Ala Met Val Asn
        355              360              365

Gln Arg Gln His Leu Gln Leu Gln Gln Gln Gln Gln Gln His Pro
    370              375              380

Pro Glu Pro Phe Gly Gly Gln Gln Pro Tyr Lys Lys Gln Arg Leu Ser
385              390              395              400

Glu Ala Asn Ala Asn Asn Met Asn His Leu Pro Pro His Pro Gln Gln
            405              410              415

Gln His Gln Gln Gln Gln Gln Gln Gln Gln His Gln Arg Ser Ser
        420              425              430

Pro Ala Gln Val Gln Gln Gln Gln Gln Gln Met Asn Ser Ser Arg
        435              440              445

Gln Ser His Asn Asp Met Cys Arg Gln Val Val Thr Thr Pro Met Gly
    450              455              460

Met Gln Leu Lys Val Glu Thr Leu Pro Gln Gln Gln Gln Lys Gln Gln
465              470              475              480

Gln His Gln Gln Gln Gln Gln Gln Gln Gly Arg Ser Gln Pro
            485              490              495

Val Val Ser Ser Met Ser Thr Val Val Ser Gln Pro Val Gly Thr Val
        500              505              510
```

52

```
Thr Val Thr Thr Ala Gly Leu Ser Ala Ser His Ser Gly Ser Ser Gly
        515             520             525

Asn Val Ala Ala Gly Leu Gly Thr Gly Asn Thr Gly Ser Ala Ser Thr
        530             535             540

Glu Ala Tyr His Pro Gln Val Glu Ala Ile Ser Pro Thr Leu Pro Ser
545             550             555             560

Asp Ser Ser Ile Glu Glu Arg Gly Arg Thr Ser Ala Lys Glu Asp Leu
            565             570             575

Leu Met Gln Ile Gln Lys Val Asp Asn Glu Ile Lys Ser Ala Glu Thr
            580             585             590

Thr Met Glu Thr Leu Arg Lys Lys Glu Lys Ser Leu Met Glu Glu Ala
        595             600             605

Ala Leu Ala Lys Glu Gln Arg Ala Ala Lys Glu Leu Asn Asp Asn Asn
    610             615             620

Asn Asp Gln Glu Pro Met Val Glu Leu Ser Trp Arg Ser Gln Met Leu
625             630             635             640

Ala Glu Lys Ile Tyr Ala Ala Asn Arg Lys Thr Ala Gln Ala Gln His
            645             650             655

Ser Met Leu Gln Asn Ala Ala Ala Asp Glu Ser Ser Pro Gly Ser Val
            660             665             670

Ala Gly Arg Pro Trp Leu Pro Leu Tyr Asn Gln Pro Leu Asp Val Glu
            675             680             685

Ala Leu Ala Met Leu Ile Arg Gln His Gln Ser Gln Ile Arg Ala Pro
    690             695             700

Leu Leu Leu His Ile Arg Lys Leu Lys Ala Glu Arg Trp Ala His Asn
705             710             715             720

Gln Gly Leu Val Glu Lys Tyr Thr Lys Asp Gln Ala Asp Trp Gln Arg
            725             730             735

Arg Cys Glu Arg Met Glu Ala Ser Ala Lys Arg Lys Ala Arg Glu Ala
            740             745             750

Lys Asn Arg Glu Phe Phe Glu Lys Val Phe Thr Glu Leu Arg Lys Gln
        755             760             765

Arg Glu Asp Lys Glu Arg Phe Asn Arg Val Gly Ser Arg Ile Lys Ser
        770             775             780

Glu Ala Asp Leu Glu Glu Ile Met Asp Gly Leu Gln Glu Gln Ala Leu
785             790             795             800

Glu Asp Lys Lys Met Arg Ser Tyr Ala Val Ile Pro Pro Leu Met His
            805             810             815
```

53

```
Asp Ala Arg Gln Arg Arg Cys Ala Tyr His Asn Glu Asn Gly Leu Ile
        820                 825             830

Glu Asp Met Val Ala Val His Gln Gln Arg Lys Ala Leu Asn Met Trp
        835                 840             845

Thr Ala Gly Glu Lys Glu Thr Phe Lys Glu Lys Tyr Leu Gln His Pro
        850                 855             860

Lys Asn Phe Gly Ala Ile Ala Ala Ser Leu Asp Arg Lys Ser Pro Gln
865                 870             875                 880

Asp Cys Val Arg Tyr Tyr Tyr Leu Ser Lys Lys Thr Glu Asn Tyr Lys
                885             890                 895

Gln Leu Leu Arg Lys Ser Arg Gln Arg Thr Arg Ser Ser Arg Asn Pro
            900                 905             910

Ala Lys Ala Gln Ala Ala Gln Pro Gln Cys Ile Ile Asp Ser Met Thr
            915                 920             925

Thr Gly Val Met Thr Arg Leu Gln Arg Glu Gln Gln Gln Lys Ser Gly
        930                 935             940

Gly Arg Ser Ser Ala Val Ala Glu Arg Glu Arg Ala Glu Arg Ala Ala
945                 950             955                 960

Glu Arg Glu Arg Val Ala Glu Lys Ala Ala Ala Asp Ala Ala Lys Ala
            965                 970                 975

Ala Glu Ser Ala Ala Glu Lys Ala Ser Ala Ala Thr Lys Ala Val Glu
            980                 985                 990

Ala Thr Ala Ala Gly Glu Lys Val Ala Lys Ala Ala Ala Ala Ala Ala
        995                 1000                1005

Ala Ala Ala Ala Thr Thr Ala Thr Thr Ala Thr Thr Thr Thr Ser Ser
    1010                1015                1020

Ser Thr Ser Ser Ser Ser Ser Ser Ala Ser Ser Ala Ser Thr Ala Ser
1025                1030                1035                1040

Ser Ser Thr Ala Ser Pro Ala Thr Leu Ala Gly Ile Ala Ala Asp Lys
            1045                1050                1055

Thr Asp Ala Gly Lys Thr Ala Ser Ala Ser Asp Lys Asn Ala Ala Thr
            1060                1065                1070

Ala Gly Gly Pro Thr Ala Thr Gly Thr Pro Thr Ala Ala Thr Thr Pro
        1075                1080                1085

Ala Thr Ala Thr Ala Pro Pro Glu Ile Ser Ala Gly Gly Glu Ala Lys
    1090                1095                1100

Ser Lys Asn Ala Glu Glu Glu Ala Ala Ala Thr Ala Gly Ala Ala Thr
1105                1110                1115                1120
```

54

Val Ala Thr Ala Gly Thr Pro Ala Thr Gly Ala Ser Ala Ala Ser Ala
         1125   1130   1135

Gly Glu Ala Thr Thr Ala Thr Gly Ala Thr Ala Thr Ala Ala Ala Lys
      1140   1145   1150

Gly Val Gly Lys Pro Glu Thr Ala Thr Glu Pro Ala Gly Thr Ala Ala
      1155   1160   1165

Lys Gly Ala Asp Ser Arg Pro Asp Ala Asn Asp Pro Leu Ala Lys Thr
    1170   1175   1180

Ala Ser Lys Ala Ile Asn Ala Glu Gly Tyr Asn Ala Ile Gly Gly Asn
1185   1190   1195   1200

Ser Ser Ser Ser Ser Ser Asn Ala Thr Gly Ala Ser Ala Pro Val Gln
        1205   1210   1215

Gly Val Thr Leu Asn Gly Phe Lys Pro Gly Tyr Gln Thr Val Val Met
      1220   1225   1230

Ala Asn Val Lys Ala Ser Thr Gly Gly Asp Asp Ser Gly Ala Asn Ala
      1235   1240   1245

Gly Gly Ala Ala Pro Gly Ser Leu Ala Ala Thr Asn Ala Ser Ile Ala
      1250   1255   1260

Thr Ser Gly Asp Lys Ile Val Lys Thr Thr Pro Ser Ser Arg Ala Pro
1265   1270   1275   1280

Asn Ser Thr Ser Ser Thr Ala Ala Asn Glu Ser Ser Ser Gly Ala Gly
        1285   1290   1295

Val Asn Thr Tyr Gly His Thr Ala Thr Thr Ala Gly Asn Tyr Leu Gly
       130.0   1305   1310

Gln Lys Leu Lys Ala Ala Gln Val Glu Gly Leu Gly Ala Gly Asn Glu
      1315   1320   1325

Leu His Ser Asp Val Ser Glu Ser Lys Arg Lys Arg Phe Glu Leu Asn
    1330   1335   1340

Ser Gly Glu Ala Gly Gly Asn Ala Thr Ser Ala Met Thr Asn Ser Ser
1345   1350   1355   1360

Thr Ser Gly Ser Met Asn Ile Ser Asn Ser His Gly Leu Lys Ala Asn
        1365   1370   1375

Ala Lys Asp Gly Ser Met Met Ala Lys Thr Ser Met Ala Ser Thr Ser
      1380   1385   1390

Ser Ala Ser Val Val Val Thr Ser Thr Pro Ser Ala Ser Ser Ser Ser
      1395   1400   1405

Leu Ser Ser Ala Ser Ser Met Leu Leu Ile Ser Ala Ala Ser Val Met
    1410   1415   1420

55

Ser Thr Ala Ala Gly Ala Thr Ser Ser Ser Thr Ala Thr Thr Thr Ala
1425   1430   1435   1440

Thr Ala Ser Ala Ile Ser Leu Pro Leu Leu Ala Asp Gly Ser Gly Asn
              1445   1450   1455

Ser Met Val Asn Ala Asn Glu Ile Leu Ala Leu Asp Gly Lys Asp Lys
        1460   1465   1470

Leu Ala Ser Cys Phe Val Cys Lys Ala Glu Ala Cys Pro Arg Thr Arg
        1475   1480   1485

Pro Leu Lys Lys Gly Arg Gly Gln Gln Tyr Gly Ile Pro Asp Glu Thr
        1490   1495   1500

Ile Pro Ala Gly Ala Arg Val Cys Asn Ser Cys Gln Cys Lys Ser Val
1505   1510   1515   1520

Arg Ser Arg Tyr Pro Asn Cys Pro Leu Pro Thr Cys Pro Asn Pro Lys
              1525   1530   1535

Asp Arg Ala Gln Arg Leu Arg Asn Ile Pro Ser Arg Leu Phe Glu Leu
        1540   1545   1550

Ala Pro Glu Val Arg Asp Pro Leu Met Ala Glu Phe Gln Ile Pro Pro
        1555   1560   1565

His Ala Thr Arg Cys Cys Ser Ala Cys Leu Met Arg Ile Arg Arg Lys
        1570   1575   1580

Leu Asp Pro Gln Leu Asn Leu Thr Asp Gly Ser Ser Gly Gly Ala Gly
1585   1590   1595   1600

Ser Gly Ser Gly Gly Asp Glu Thr Asp Val Ser Thr Ser Ser Cys Asp
              1605   1610   1615

Glu Arg Glu Pro Gly Gly Ser Asp Thr Ala Ser Val Glu Ser Pro Glu
        1620   1625   1630

Asn Leu Gln Arg His Lys Ser Leu Thr Met Val Lys Gln Gln Gln Gln
        1635   1640   1645

Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
        1650   1655   1660

Gln Gln Gln Leu Ser Gln Pro Gln Pro Pro Pro Ala Pro Gln Gln
1665   1670   1675   1680

Gln Lys Gly Ser Ser Gly Arg Gly Gly Asp Gln Gly Thr Pro Leu Ile
              1685   1690   1695

Ile Thr Pro Thr Arg Met Ser Ser Lys Ser Gly Ser Gly Gly Ala Gln
        1700   1705   1710

Thr Ala Gly Asp Asn Glu Arg Leu Leu Pro Pro Ala Ala Gly Gln Ala
        1715   1720   1725

56

```
Pro Lys Lys Gln Lys Thr Ser Glu Glu Tyr Asp Ser Ser Ala Thr Glu
    1730                1735                1740

Thr Ala Asp Glu Glu Asn Glu Asn Ser Pro Ala Asn Arg Gln Ser Pro
1745                1750                1755                1760

Lys Val Leu Phe His Gly His Gly His Gly His Gly Gly His Ala Asn
            1765                1770                1775

Asn Val Ala Gly Leu Gln Pro Pro Val Ala Asn Met Gly Thr Gly Gly
            1780                1785                1790

Gly Val Gln Pro Gly Gly Ala Ala Gly Gln Gln Val Asn Gly Pro Ile
        1795                1800                1805

Ser Met Arg Arg Glu Ala Val Asn Asn Val Gln Asp Cys Val Phe Ser
    1810                1815                1820

Val Ile Glu Arg Ser Leu Lys His Lys Gly Pro Gln Pro Lys Gly Gly
1825                1830                1835                1840

Gln Gly Gln Gln Gln Gly Gln Gly Gln Gly Gln Gly Gln Gly Gln Gly
            1845                1850                1855

Gln Thr Pro Gly Gln Ser Gln Ser Pro Ser Gln Gln Gln Gln Gln Gln
        1860                1865                1870

Gln Gln Gln Gln Ser Ala Asn Asn Leu Glu Arg Lys Glu Leu Thr Ile
    1875                1880                1885

Val Arg Glu Tyr Arg Gln Asp Pro Gly Ile Leu Lys Gln Gln Gln Gln
    1890                1895                1900

Gln Gln Gln Ala Gly Gly Ala Pro Pro Thr Ser Ala Ala Gly Ser Leu
1905                1910                1915                1920

Pro His Gly Thr Ser Val Gln Lys Leu Thr Thr Arg Pro Ala Ala Val
            1925                1930                1935

Ala Pro Pro Pro Pro Ala His Pro Leu Thr Pro Thr Ser Ile Gly Cys
            1940                1945                1950

Ala Gly Ser Asn Asn Gly Thr Ser Asp Ser Leu Ala Thr Leu Ser Val
        1955                1960                1965

Val Asn Ser His Met Gly Met Val Gly Ile Gly His Pro Gly Pro Met
    1970                1975                1980

Ala His Ala Ser Ser Ala Gly Gly Ile Gly Val Asp Lys Ala Thr Ile
1985                1990                1995                2000

Thr Pro Val Val Lys Ser Ser Ser Gly Ser Ser Lys Ser Gly Gly Gly
            2005                2010                2015

Ser Ala Ser Ser His Ser Thr Ala Thr Pro Pro Glu Thr Ile Ile Tyr
    2020                2025                2030
```

57

Asn Val Pro Val Ala His Pro Gln Arg Gly Ile Pro Pro Pro Ser Gln
        2035   2040   2045

His Ser Val His Pro Ala His Pro Ser His Thr Gln His Pro Ala His
        2050   2055   2060

Pro Gln His Ser Ser His Gly Gln His Thr Gln Leu Gln Val Pro Glu
2065   2070   2075   2080

Pro Glu Pro Gln Thr Leu Asp Leu Ser Ile Lys Lys Pro Pro Arg Asp
            2085   2090   2095

Gly His Ser Pro His Thr Gly Ala Gly Gly Ser Ser Ser Ser Gly Ser
            2100   2105   2110

Gly Ser Gly Gly Pro Ser Ser Ser Asp Arg His His Gly Pro Pro Pro
            2115   2120   2125

Pro Thr Met Ser Met Lys His Ile Val Arg Ser Gly Gly Met Tyr Arg
        2130   2135   2140

Gly Asp Thr Val Thr Val Pro Ser Leu Ala Ala Pro Ser Ser Tyr Leu
2145   2150   2155   2160

Tyr Pro Thr Arg Ser Val Lys Ser Ile Gly Gly Gly Gly Val Val Pro
            2165   2170   2175

Gly Val Leu Pro Gly Val Pro Gly Ile Ala Leu Tyr Leu Gln Pro Val
            2180   2185   2190

Pro Val Pro Val Pro Ile Ser Ile Ser Gly Gln Gly Gln Leu Pro Pro
        2195   2200   2205

Lys Ala Gly Gln Pro Pro Pro Ala Gln Pro Pro Ser Gly Arg Gly Val
        2210   2215   2220

Ala Lys Val Pro Pro Lys Leu Ser Pro Gln Gln Ala His His Leu His
2225   2230   2235   2240

Pro Ser His Gly His Ser Pro Ser Gln Gln Gln Gln Gln Gln Gln Gln
            2245   2250   2255

Gln Gln Gln Gln Gln Gln Gln Gln Ala Ala Ala Ala Gln Gln Gln Leu
        2260   2265   2270

Leu Val Lys Ser Gly Ser Ile Ile His Gly Thr Pro Ala Asn Ser Ala
        2275   2280   2285

Gln Gln Gln Ile Ile Val His Ala Pro Ala Thr Ala Ala Ala Ala Pro
    2290   2295   2300

Ser Ser Leu Phe Ser Pro Lys Phe Asp Gly Leu Val Arg Gln Thr Thr
2305   2310   2315   2320

Pro Glu Gly Val Gly Ser Val Gly Pro Gly Gly Ala Ser Gly Ser Gly
        2325   2330   2335

58

```
Lys His Gly Ser Ile Thr Gln Gly Thr Pro Leu His Met Pro Pro His
         2340                2345                2350

His Leu Glu Ser Lys Arg Pro Tyr Glu Ser Tyr Tyr Lys Ser Ser Gln
         2355                2360                2365

Arg His Ser Pro Ala Gln Gln Pro Gly Gly Asn Gln Gln Leu Pro Pro
    2370                2375                2380

Pro Pro Gln Gln Ser Ser Pro Gln Ala Pro Pro Pro Gln Gly Tyr Gly
2385                2390                2395                2400

Val Gly Val Ser Ser Pro Tyr Ala Arg Ser Pro Phe Ala Gly Val Val
         2405                2410                2415

Glu Gln Pro Gln Val Leu Ser Thr Arg Gln Ile Val Met His Asp Tyr
         2420                2425                2430

Ile Thr Ser Gln Gln Met Gln Gly Gln Gln Gln Gln Gln Gln Gln Gln
    2435                2440                2445

Gln Gln Gln Gln Arg Asn Met Ser Arg Gly Ser Ser Ala Ser Gly Gly
    2450                2455                2460

Gly Gly Gly Gly Gly Ser Asp Lys Glu Ser Pro Ser Pro Arg Asn Ser
2465                2470                2475                2480

Val Gly Ser Ala Ser Gly Phe Ala Tyr Gly Gly Asp Lys Glu Ser Ala
         2485                2490                2495

Pro Arg Gly Arg Pro Glu Tyr Ser Ser Arg Ala Ser Pro Ala Asp His
         2500                2505                2510

Val Asn Ser Thr Pro Ser Pro His Arg Thr Pro Pro Pro Gln Arg Gln
         2515                2520                2525

Gly Val Ile Gln Arg His Asn Thr Gly Ser Lys Pro Pro Ser Pro Ala
    2530                2535                2540

Ala Pro Pro Pro Ser Arg Met His Met Pro Pro Tyr Gln Tyr Ala Pro
2545                2550                2555                2560

Ser Gly His Asp Ala Leu Ala Ser Phe Val Asp Val Ala Val Gln Gln
         2565                2570                2575

Pro Gln Leu Pro Val Pro Ser Gln Lys Asp Asp Lys Ser Pro Gly Pro
         2580                2585                2590

Ser Thr Ala Pro Gly Gln Val Pro Gly Ser Gly Pro Pro Leu Gly Pro
         2595                2600                2605

Ser Pro Leu Pro Pro His Ala Val Val Gly Val Ala Gln Pro Pro Pro
    2610                2615                2620

Pro Thr Ala His His Asp Gln Arg Tyr Arg Asp Leu Thr Leu His His
    2625                2630                2635                2640
```

59

```
His His His Thr Leu Val Gln Gln Gln Ile Ala Gln Gln Gln His Tyr
        2645            2650                2655

Arg Ser Leu Asn Val Ala Ala Gln Val Asp Met Gln Arg Gln Met Asp
        2660            2665                2670

Gln Ala Lys Arg Val Met Arg His Gln Gln His Gln Val Gln Gln Gln
        2675            2680                2685

Gln Gln Gln Gln Gln Gln Gln Gln His Asn His Ala Leu Glu Arg Asp
        2690            2695                2700

Arg Glu Met Gln Glu Arg Met Arg Glu Arg Asp Arg Glu Arg Glu Arg
    2705            2710            2715                2720

Glu Arg Glu Arg Glu Gln Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
            2725            2730            2735

Arg Glu Arg Glu Arg Glu Arg Arg Glu Gln Asp Arg Ala Arg Arg Val
        2740            2745                2750

Val Ala Glu Glu Arg Glu His Asp Ser Arg Arg Met Glu Arg Met Phe
        2755            2760            2765

Ala Gly Asn Val Val Thr Gly Ser Gly Gly Ala Gly Gly Gly Gly Pro
    2770            2775            2780

Ser Pro Gly Gln Phe Leu Arg Ala Ser Val Pro Glu Thr Gly Pro Pro
2785            2790            2795            2800

Arg Ser Ile Pro Asp Arg Glu Arg Glu Ser Tyr Tyr Arg Gln Ala His
        2805            2810            2815

Gly Gly Pro Ala Pro Glu Asp Thr Pro Gly Gln Leu Ser Ala Gln Ser
        2820            2825            2830

Leu Ile Asp Ala Ile Ile Lys His Glu Ile Asn Arg Ser Asn Asp Ala
        2835            2840            2845

Thr Ala Gly Pro Gly Arg Glu Phe Pro Arg Pro Ser Phe Val His Ala
    2850            2855            2860

Pro Leu Pro Pro Arg Gly Ser Gly Ser Gly Gly Gly Thr Gly Thr Arg
2865            2870            2875            2880

Ser Ser Pro Ala Asn Val Leu His Pro Met Tyr Leu Arg Asp Leu Arg
        2885            2890            2895

Gln Pro Leu Asp Gly Gly Ala Gly Ser Met Leu Thr Ala Glu Asn Asn
        2900            2905            2910

Gly Lys Pro Ser Ser Ser Gly Ser Pro Ser Val Ile Asn Ile Asp Leu
        2915            2920            2925

Asp Gln Glu Arg Ile Ser Ala Ala Ala Ala Val Ala Gln Gln Gln
    2930            2935            2940
```

60

Gln Gln Gln Gln Ala Pro Pro Pro Ser Gln Ser Ser Gln Ser Arg Ser
2945   2950   2955   2960

Val His Gly Gln Leu Arg Thr Pro Thr Ser Gln Ser Gly Gly Ser Ala
          2965   2970   2975

Pro Ser Pro Gln Gln Ile His Thr Lys Ser Ile Thr Phe Gly Glu Leu
          2980   2985   2990

Thr Asp Ser Ile Ile Thr Ser Asp Tyr Gly Thr Asn Pro His Leu Arg
      2995   3000   3005

Pro Pro Tyr Met Ala Tyr Leu Gln Glu Thr Gln Ser Ile Leu Pro Pro
   3010   3015   3020

Asp Arg Trp Lys Gln Asn Arg Arg Met Gln Gln Lys Ala Glu Glu Ala
3025   3030   3035   3040

Asn Asp His Ser Gln Gln Gln Gln Gln Gln Gln His Gln Gln Gln His
          3045   3050   3055

His Ala Gln Gln Gln Gln Gln Gln Gln Gln Gln His His Ala Gln Gln
          3060   3065   3070

His His Pro Gln Met Pro Gly Thr Gly Ser Gly Ser Ala Pro Gly Gly
      3075   3080   3085

Ala Gly Gln Gly Gly Gly Ser Gly Gly Pro Gly Ser Gly Gly Gly Gly
   3090   3095   3100

Ala Gly Arg Ala Ser Thr Pro Gly Glu Asp Gly Arg Asn Ile Ile Arg
3105   3110   3115   3120

Met Pro Gln Ala Val Ser Pro Arg Lys Phe Asn His Glu Met Met Leu
          3125   3130   3135

His His Val Met Gly Thr Thr Gly Ala Gly Gly Glu Ala Gly Gln Phe
      3140   3145   3150

Phe Leu Pro Ser Arg Val Val Leu Pro Glu Gln Arg Gly Thr Pro Ser
   3155   3160   3165

Gly Gly Gly Gly Ala Pro Gly Ala Gly Gly Pro Gly Ser Gly Gly Gly
   3170   3175   3180

Ala Thr Thr Ile Glu Lys Tyr Val Lys Thr Arg Ile Ala Glu Val Met
3185   3190   3195   3200

Arg Asp Asp Ile Gly Tyr Gly Lys Asn Arg Thr Val Glu Val Arg Thr
          3205   3210   3215

Glu Asp Glu Val Thr Ala Asp Met Val Ala His Ser His Ala Ala Val
          3220   3225   3230

His Ala Ala His Val Ala His Ala Ala His Val Ala His Ala Ala Ala
   3235   3240   3245

61

Met Glu Leu Gln His Arg Ser Lys Glu Pro Pro Pro Pro Glu Ile Ser
    3250   3255   3260

Val Ser Arg Lys Thr Pro Asn Gln Tyr Glu Val Val Asp Ala Ser Gly
    3265   3270   3275   3280

Arg Arg Ser Ala Gly Ser Gly Ser Val Ser Val Ser Val Ser Gly Ala
            3285   3290   3295

Asn Ser His His Ser Pro Tyr His Pro Pro Ala Ala Ala Tyr Ala Pro
            3300   3305   3310

Ser Thr Tyr Ala Phe Pro Tyr Ser Ala Leu Asn Val Pro Gly Ala Ala
        3315   3320   3325

Gly Gly Leu Pro Pro His Gln Pro Leu Gln Leu Ala His Gln Ala Val
    3330   3335   3340

Ala Pro Pro Gly Ala Phe Ala Lys Ala Lys Ala Ala His Ala Leu Ser
3345   3350   3355   3360

Glu Leu Gly Ala Val Gly Gly Gly Val Ser Leu Val Val Gly Gly Gly
            3365   3370   3375

Ser Gly Gly Ile Ala Gly Gly Pro Gly Gly Val Ser Val Gly Val Gly
        3380   3385   3390

Val Pro Gly Gly Gly Gly Pro Gly Ser Gly Gly Gly Gly Gly Gly Gly
        3395   3400   3405

His Asn Ser Ser Ser Ser Gln Ala Ser Ala Ala Val Ala Ala Ala Val
    3410   3415   3420

Ala Ala Ala Ala Ser Glu Ser Lys Pro Leu Leu Leu Ser Lys Tyr Asp
3425   3430   3435   3440

Ala Leu Ser Asp Glu Asp
            3445

<210> 13
<211> 9
<212> PRT
<213> Drosophila sp.

<400> 13
Met Ala Pro Lys Lys Lys Arg Lys Val
 1   5

<210> 14
<211> 51
<212> PRT
<213> Drosophila sp.

<400> 14
Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val
 1   5   10   15

62

```
Glu Phe Ala Lys Gly Leu Pro Ala Phe Tyr Lys Ile Pro Gln Glu Asp
              20                  25              30

Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg
          35                  40                  45

Met Ala Arg
        50


<210> 15
<211> 51
<212> PRT
<213> Rattus sp.

<400> 15
Phe Ser Glu Phe Thr Lys Ile Ile Thr Pro Ala Ile Thr Arg Val Val
  1           5                  10                  15

Asp Phe Ala Lys Lys Leu Pro Met Phe Ser Glu Leu Pro Cys Glu Asp
              20                  25                  30

Gln Ile Ile Leu Leu Lys Gly Cys Cys Met Glu Ile Met Ser Leu Arg
          35                  40                  45

Ala Ala Val
        50


<210> 16
<211> 51
<212> PRT
<213> Homo sapiens

<400> 16
Trp Asp Lys Phe Ser Glu Leu Ala Thr Lys Cys Ile Ile Lys Ile Val
  1           5                  10                  15

Glu Phe Ala Lys Arg Leu Pro Gly Phe Thr Gly Leu Ser Ile Ala Asp
              20                  25                  30

Gln Ile Thr Leu Leu Lys Ala Ala Cys Leu Asp Ile Leu Met Leu Arg
          35                  40                  45

Ile Cys Thr
        50


<210> 17
<211> 51
<212> PRT
<213> Rattus sp.

<400> 17
Trp Glu Glu Phe Ser Met Ser Phe Thr Pro Ala Val Lys Glu Val Val
  1           5                  10                  15
```

63

```
Glu Phe Ala Lys Arg Ile Pro Gly Phe Arg Asp Leu Ser Gln Hi  Asp
            20              25                  30

Gln Val Asn Leu Leu Lys Ala Gly Thr Phe Glu Val Leu Met Val Arg
            35              40                  45

Phe Ala Ser
        50


<210> 18
<211> 275
<212> PRT
<213> Drosophila sp.

<400> 18
Lys Glu Asp Leu Leu Met Gln Ile Gln Lys Val Asp Asn Glu Ile Lys
  1               5               10                  15

Ser Ala Glu Thr Thr Met Glu Thr Leu Arg Lys Lys Glu Lys Ser Leu
            20              25                  30

Met Glu Glu Ala Ala Leu Ala Lys Glu Gln Arg Ala Ala Lys Glu Leu
            35              40                  45

Asn Asp Asn Asn Asn Asp Gln Glu Pro Met Val Glu Leu Ser Trp Arg
        50              55              60

Ser Gln Met Leu Ala Glu Lys Ile Tyr Ala Ala Asn Arg Lys Thr Ala
 65              70              75                  80

Gln Ala Gln His Ser Met Leu Gln Asn Ala Ala Ala Asp Glu Ser Ser
                85              90                  95

Pro Gly Ser Val Ala Gly Arg Pro Trp Leu Pro Leu Tyr Asn Gln Pro
            100             105             110

Leu Asp Val Glu Ala Leu Ala Met Leu Ile Arg Gln His Gln Ser Gln
            115             120             125

Ile Arg Ala Pro Leu Leu Leu His Ile Arg Lys Leu Lys Ala Glu Arg
    130             135             140

Trp Ala His Asn Gln Gly Leu Val Glu Lys Tyr Thr Lys Asp Gln Ala
145             150             155                 160

Asp Trp Gln Arg Arg Cys Glu Arg Met Glu Ala Ser Ala Lys Arg Lys
                165             170             175

Ala Arg Glu Ala Lys Asn Arg Glu Phe Phe Glu Lys Val Phe Thr Glu
            180             185             190

Leu Arg Lys Gln Arg Glu Asp Lys Glu Arg Phe Asn Arg Val Gly Ser
            195             200             205

Arg Ile Lys Ser Glu Ala Asp Leu Glu Glu Ile Met Asp Gly Leu Gln
    210             215             220
```

64

```
Glu Gln Ala Leu Glu Asp Lys Lys Met Arg Ser Tyr Ala Val Ile Pro
225             230             235                 240

Pro Leu Met His Asp Ala Arg Gln Arg Arg Cys Ala Tyr His Asn Glu
            245             250             255

Asn Phe Leu Ile Glu Asp Met Val Ala Val His Gln Gln Arg Lys Ala
            260             265             270

Leu Asn Met
        275
```

<210> 19
<211> 262
<212> PRT
<213> Mus sp.

<400> 19

```
Lys Glu Glu Leu Ile Gln Ser Met Asp Arg Val Asp Arg Glu Ile Ala
  1             5               10              15

Lys Val Glu Gln Gln Ile Leu Lys Leu Lys Lys Lys Gln Gln Gln Leu
            20              25              30

Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys Pro Val Ser Pro
        35              40              45

Pro Pro Val Glu Gln Lys His Arg Ser Ile Val Gln Ile Ile Tyr Asp
    50              55              60

Glu Asn Arg Lys Lys Ala Glu Glu Ala His Lys Ile Phe Glu Gly Leu
65              70              75              80

Gly Pro Lys Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr Lys
            85              90              95

Val Tyr His Glu Asn Ile Lys Thr Asn Gln Val Met Arg Lys Lys Leu
            100             105             110

Ile Leu Phe Phe Lys Arg Arg Asn His Ala Arg Lys Gln Arg Glu Gln
        115             120             125

Lys Ile Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Trp Glu Lys Lys
        130             135             140

Val Asp Arg Ile Glu Asn Asn Pro Arg Arg Lys Ala Lys Glu Ser Lys
145             150             155             160

Thr Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln Arg
            165             170             175

Glu Gln Gln Glu Arg Phe Gln Arg Val Gly Gln Arg Gly Ala Gly Leu
            180             185             190

Ser Ala Thr Ile Ala Arg Ser Glu His Glu Ile Ser Glu Ile Ile Asp
        195             200             205
```

65

Gly Leu Ser Glu Gln Glu Asn Asn Glu Lys Gln Met Arg Gln Leu Ser
    210   215   220

Val Ile Pro Pro Met Met Phe Asp Ala Glu Gln Arg Arg Val Lys Phe
225   230   235   240

Ile Asn Met Asn Gly Leu Met Glu Asp Pro Met Lys Val Tyr Lys Asp
            245   250   255

Arg Gln Phe Met Asn Val
            260

<210> 20
<211> 263
<212> PRT
<213> Homo sapiens

<400> 20
Lys Glu Glu Leu Ile Gln Asn Met Asp Arg Val Asp Arg Glu Ile Thr
  1   5   10   15

Met Val Glu Gln Gln Ile Ser Lys Leu Lys Lys Lys Gln Gln Gln Leu
            20   25   30

Glu Glu Glu Ala Ala Lys Pro Pro Glu Pro Glu Lys Pro Val Ser Pro
        35   40   45

Pro Pro Ile Glu Ser Lys His Arg Ser Leu Val Gln Ile Ile Tyr Asp
        50   55   60

Glu Asn Arg Lys Lys Ala Glu Ala Ala His Arg Ile Leu Glu Gly Leu
65   70   75   80

Gly Pro Gln Val Glu Leu Pro Leu Tyr Asn Gln Pro Ser Asp Thr Arg
            85   90   95

Gln Tyr His Glu Asn Ile Lys Ile Asn Gln Ala Met Arg Lys Lys Leu
            100   105   110

Ile Leu Tyr Phe Lys Arg Arg Asn His Ala Arg Lys Gln Trp Lys Gln
        115   120   125

Lys Phe Cys Gln Arg Tyr Asp Gln Leu Met Glu Ala Leu Glu Lys Lys
        130   135   140

Val Glu Arg Ile Glu Asn Asn Pro Arg Arg Arg Ala Lys Glu Ser Lys
145   150   155   160

Val Arg Glu Tyr Tyr Glu Lys Gln Phe Pro Glu Ile Arg Lys Gln Arg
            165   170   175

Glu Leu Gln Glu Arg Met Gln Ser Arg Val Gly Gln Arg Gly Ser Gly
            180   185   190

Leu Ser Met Ser Ala Ala Arg Ser Glu His Glu Val Ser Glu Ile Ile
            195   200   205

66

```
Asp Gly Leu Ser Glu Gln Glu Asn Leu Glu Lys Gln Met Arg Gln Leu
    210             215             220

Ala Val Ile Pro Pro Met Leu Tyr Asp Ala Asp Gln Gln Arg Ile Lys
225             230             235             240

Phe Ile Asn Met Asn Gly Leu Met Ala Asp Pro Met Lys Val Tyr Lys
            245             250             255

Asp Arg Gln Val Met Asn Met
            260
```

```
<210> 21
<211> 48
<212> PRT
<213> Drosophila sp.
```

```
<400> 21
Trp Thr Ala Gly Glu Lys Glu Thr Phe Lys Glu Lys Tyr Leu Gln His
  1           5               10              15

Pro Lys Asn Phe Gly Ala Ile Ala Ala Ser Leu Asp Arg Lys Ser Pro
            20              25              30

Gln Asp Cys Val Arg Tyr Tyr Tyr Leu Ser Lys Lys Thr Glu Asn Tyr
        35              40              45
```

```
<210> 22
<211> 48
<212> PRT
<213> Mus sp.
```

```
<400> 22
Trp Thr Asp His Glu Lys Glu Ile Phe Lys Asp Lys Phe Ile Gln His
  1           5               10              15

Pro Lys Asn Phe Gly Leu Ile Ala Ser Tyr Leu Glu Arg Lys Ser Val
            20              25              30

Pro Asp Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr
        35              40              45
```

```
<210> 23
<211> 48
<212> PRT
<213> Homo sapiens
```

```
<400> 23
Trp Ser Glu Gln Glu Lys Glu Thr Phe Arg Glu Lys Phe Met Gln His
  1           5               10              15

Pro Lys Asn Phe Gly Leu Ile Ala Ser Phe Leu Glu Arg Lys Thr Val
            20              25              30
```

67

Ala Glu Cys Val Leu Tyr Tyr Tyr Leu Thr Lys Lys Asn Glu Asn Tyr
        35   40   45

<210> 24
<211> 48
<212> PRT
<213> Caenorhabditis elegans

<400> 24
Trp Ser Pro Glu Glu Arg Ser Leu Phe Lys Ser Arg Gln Ala Asp His
 1   5   10   15

Val Lys Ile Phe His Gly Leu Thr Glu Phe Phe Val Asp Lys Thr Ala
            20   25   30

Ser Asp Leu Val Leu Phe Tyr Tyr Met Asn Lys Lys Thr Glu Asp Tyr
        35   40   45

<210> 25
<211> 48
<212> PRT
<213> Caenorhabditis elegans

<400> 25
Trp Thr Pro Asp Glu Ile Tyr Gln Phe Gln Asp Ala Ile Tyr Gln Ser
 1   5   10   15

Glu Lys Asp Phe Asp Lys Val Ala Val Glu Leu Pro Gly Lys Ser Val
            20   25   30

Lys Glu Cys Val Gln Phe Tyr Tyr Thr Trp Lys Lys Asp Cys Pro Asp
        35   40   45

<210> 26
<211> 49
<212> PRT
<213> Xenopus sp.

<400> 26
Trp Thr Glu Glu Glu Cys Arg Asn Phe Gln Gln Gly Leu Lys Ala Tyr
 1   5   10   15

Gly Lys Asp Phe His Leu Ile Gln Ala Asn Lys Val Arg Thr Arg Ser
            20   25   30

Val Gly Glu Cys Val Ala Phe Tyr Tyr Met Trp Lys Lys Ser Glu Arg
        35   40   45

Tyr

<210> 27
<211> 48
<212> PRT
<213> Mus sp.

68

```
<400> 27
Trp Thr Glu Glu Glu Met Glu Val Ala Lys Lys Gly Leu Val Glu His
1               5              10             15

Gly Arg Asn Trp Ala Ala Ile Ala Lys Met Val Gly Thr Lys Ser Glu
        20             25             30

Ala Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Arg Arg His Asn Leu
        35             40             45


<210> 28
<211> 48
<212> PRT
<213> Homo sapiens

<400> 28
Trp Thr Glu Glu Glu Met Glu Thr Ala Lys Lys Gly Leu Leu Glu His
1               5              10             15

Gly Arg Asn Trp Ser Ala Ile Ala Arg Met Val Gly Ser Lys Thr Val
        20             25             30

Ser Gln Cys Lys Asn Phe Tyr Phe Asn Tyr Lys Lys Arg Gln Asn Leu
        35             40             45


<210> 29
<211> 48
<212> PRT
<213> Homo sapiens

<400> 29
Trp Thr Val Glu Asp Lys Val Leu Phe Glu Gln Ala Phe Ser Phe His
1               5              10             15

Gly Lys Thr Phe His Arg Ile Gln Gln Met Leu Pro Asp Lys Ser Ile
        20             25             30

Ala Ser Leu Val Lys Phe Tyr Tyr Ser Trp Lys Lys Thr Arg Thr Lys
        35             40             45


<210> 30
<211> 48
<212> PRT
<213> Caenorhabditis elegans

<400> 30
Trp Thr Asp Gln Glu Ile Thr Leu Phe Glu Asn Cys Tyr Gln Ile Phe
1               5              10             15

Gly Lys Asn Phe Ser Gln Ile Arg Ser Ala Leu Cys His Arg Ser Leu
        20             25             30

Gln Ser Ile Val Gln Phe Tyr Tyr Glu Ser Lys Lys Arg Val Lys Tyr
        35             40             45
```

69

<210> 31
<211> 49
<212> PRT
<213> Saccharomyces sp.

<400> 31
Phe Thr Asp His Glu His Ser Leu Phe Leu Glu Gly Tyr Leu Ile His
1   5   10   15
Pro Lys Lys Phe Gly Lys Ile Ser His Tyr Met Gly Gly Leu Arg Ser
            20   25   30
Pro Glu Glu Cys Val Leu His Tyr Tyr Arg Thr Lys Lys Thr Val Asn
        35   40   45
Tyr

<210> 32
<211> 16
<212> PRT
<213> Drosophila sp.

<400> 32
Thr Arg Gln Ile Val Met His Asp Tyr Ile Thr Ser Gln Gln Met Gln
1   5   10   15

<210> 33
<211> 16
<212> PRT
<213> Homo sapiens

<400> 33
Asn Arg Gln Thr Ile Ile Asn Asp Tyr Ile Thr Ser Gln Gln Met His
1   5   10   15

<210> 34
<211> 16
<212> PRT
<213> Mus sp.

<400> 34
Thr Arg Gln Thr Ile Leu Asn Asp Tyr Ile Thr Ser Gln Gln Met Gln
1   5   10   15

<210> 35
<211> 17
<212> PRT
<213> Drosophila sp.

<400> 35
Glu Ser Lys Pro Leu Leu Leu Ser Lys Tyr Asp Ala Leu Ser Asp Glu
1   5   10   15

70

Asp

<210> 36
<211> 17
<212> PRT
<213> Homo sapiens

<400> 36
Glu Pro Lys Pro Leu Leu Cys Ser Gln Tyr Glu Thr Leu Ser Asp Ser
 1   5   10   15

Glu

<210> 37
<211> 18
<212> PRT
<213> Mus sp.

<400> 37
Glu Pro Ala Pro Leu Leu Ser Ala Gln Tyr Glu Thr Leu Ser Asp Ser
 1   5   10   15

Asp Asp

<210> 38
<211> 14
<212> PRT
<213> Drosophila sp.

<400> 38
Val Lys Ser Gly Ser Ile Ile His Gly Thr Pro Ala Asn Ser
 1   5   10

<210> 39
<211> 14
<212> PRT
<213> Drosophila sp.

<400> 39
Gly Lys His Gly Ser Ile Thr Gln Gly Thr Pro Leu His Met
 1   5   10

<210> 40
<211> 14
<212> PRT
<213> Homo sapiens

<400> 40
Val Pro Gly Gly Ser Ile Thr Lys Gly Ile Pro Ser Thr Arg
 1   5   10

71

```
<210> 41
<211> 14
<212> PRT
<213> Homo sapiens

<400> 41
Thr Tyr Arg Gly Ser Ile Thr His Gly Thr Pro Ala Asp Val
 1               5                   10


<210> 42
<211> 14
<212> PRT
<213> Homo sapiens

<400> 42
His Ile Arg Gly Ser Ile Thr Gln Gly Ile Pro Arg Ser Tyr
 1               5                   10


<210> 43
<211> 14
<212> PRT
<213> Homo sapiens

<400> 43
Leu Lys Glu Gly Ser Ile Thr Gln Gly Thr Pro Leu Lys Tyr
 1               5                   10


<210> 44
<211> 14
<212> PRT
<213> Homo sapiens

<400> 44
Ser Ser Gly Gly Ser Ile Ala Arg Gly Ala Pro Val Ile Val
 1               5                   10


<210> 45
<211> 14
<212> PRT
<213> Mus sp.

<400> 45
Thr Pro Pro Gly Ser Ile Leu Ile Ser Ser Pro Ile Lys Pro
 1               5                   10


<210> 46
<211> 14
<212> PRT
<213> Mus sp.

<400> 46
Ile Met Gly Gly Ser Ile Ser Gln Gly Thr Pro Gly Thr Tyr
 1               5                   10
```

72

```
<210> 47
<211> 14
<212> PRT
<213> Mus sp.

<400> 47
Pro Ser Val Gly Ser Ile Ser Leu Gly Leu Pro Arg Gln Gln
1               5                   10


<210> 48
<211> 14
<212> PRT
<213> Mus sp.

<400> 48
Val Gln Glu Gly Ser Ile Thr Arg Gly Thr Pro Ala Ser Lys
1               5                   10


<210> 49
<211> 14
<212> PRT
<213> Mus sp.

<400> 49
Ser Leu Arg Gly Ser Ile Thr Gln Gly Thr Pro Ala Leu Pro
1               5                   10


<210> 50
<211> 14
<212> PRT
<213> Mus sp.

<400> 50
Val Leu Ser Gly Ser Ile Met Gln Gly Thr Pro Arg Ala Thr
1               5                   10


<210> 51
<211> 14
<212> PRT
<213> Mus sp.

<400> 51
Ile Ile Glu Gly Ser Ile Ser Gln Gly Thr Pro Ile Lys Phe
1               5                   10


<210> 52
<211> 14
<212> PRT
<213> Caenorhabditis elegans
```

73

<400> 52
Gln Thr Gln Gly Ser Leu Thr Ser Gly Thr Pro Phe Gln Ala
 1   5   10